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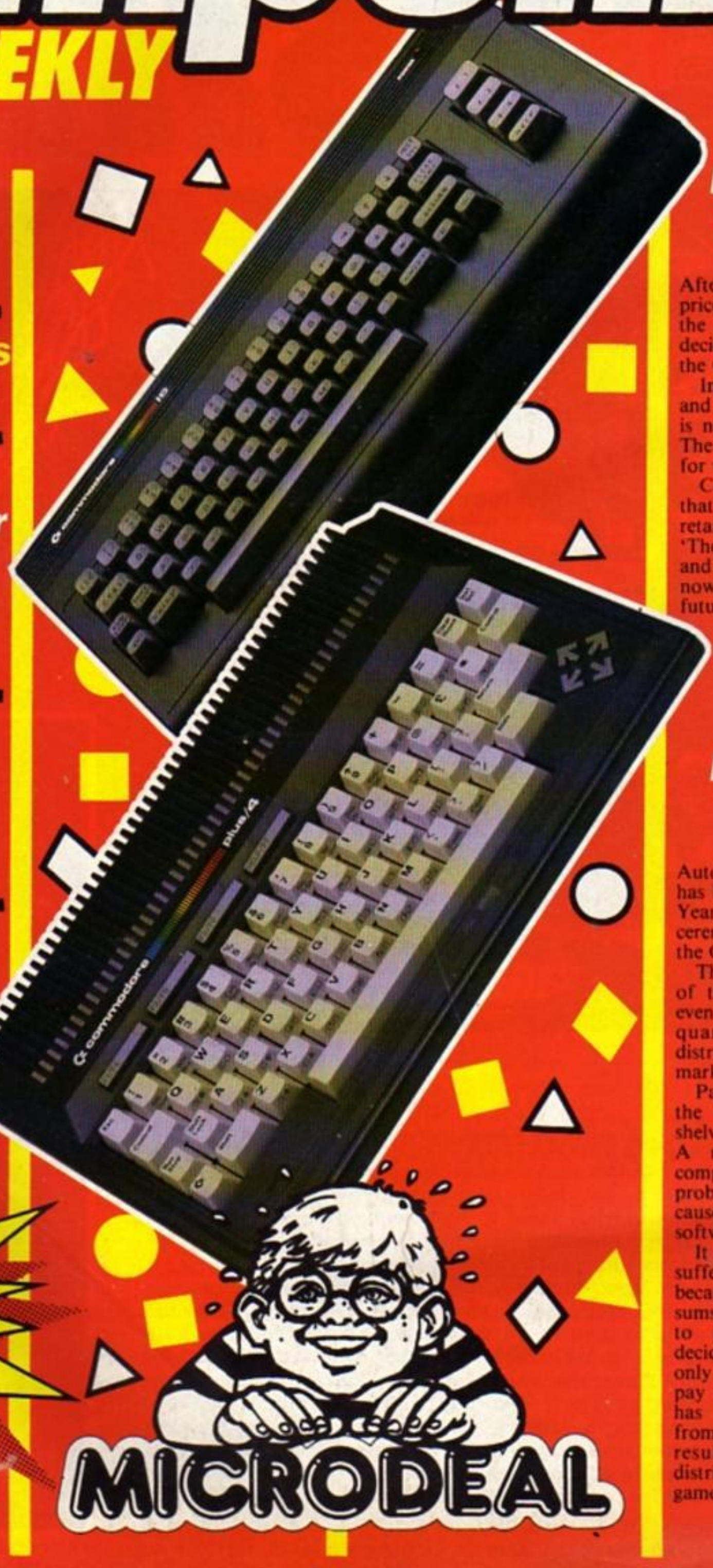
HOME Computing WEEKLY



Our first C16/ Plus 4 program

Industry shows off at LET

Prizes for puzzlers in our ENGLISH SOFTWARE™ competition

Take a PEEK inside your Amstrad CPC 464

Make it spritely: graphics on C64

Exclusive Cuthberts C16 Temple review

High street price wars

After last week's fall in the price of the Commodore Plus 4, the high street retailers have decided to sell it's little brother the C16 at a huge discount.

In branches of both Boots and Dixons the C16 starter pack is now selling for just £79.95. The official Commodore price for the pack is £139.99.

Commodore's official line is that 'it is a decision of the retailers.' A spokesman said: 'They are selling off overstocks and want the cash in their hands now instead of profit in the future.'

Continued on page 5

Non-starter wins race

Automata's Deus Ex Machina has been voted program of the Year at the recent CTA award ceremony, yet only 12 copies of the C64 version have been sold.

There have been more sales of the Spectrum version, but even this hasn't sold in vast quantities because certain distributors have refused to market the product.

Part of the difficulty is due to the way software reaches the shelves of your local shop. A number of distribution companies have had financial problems lately and this has caused difficulties for small software houses.

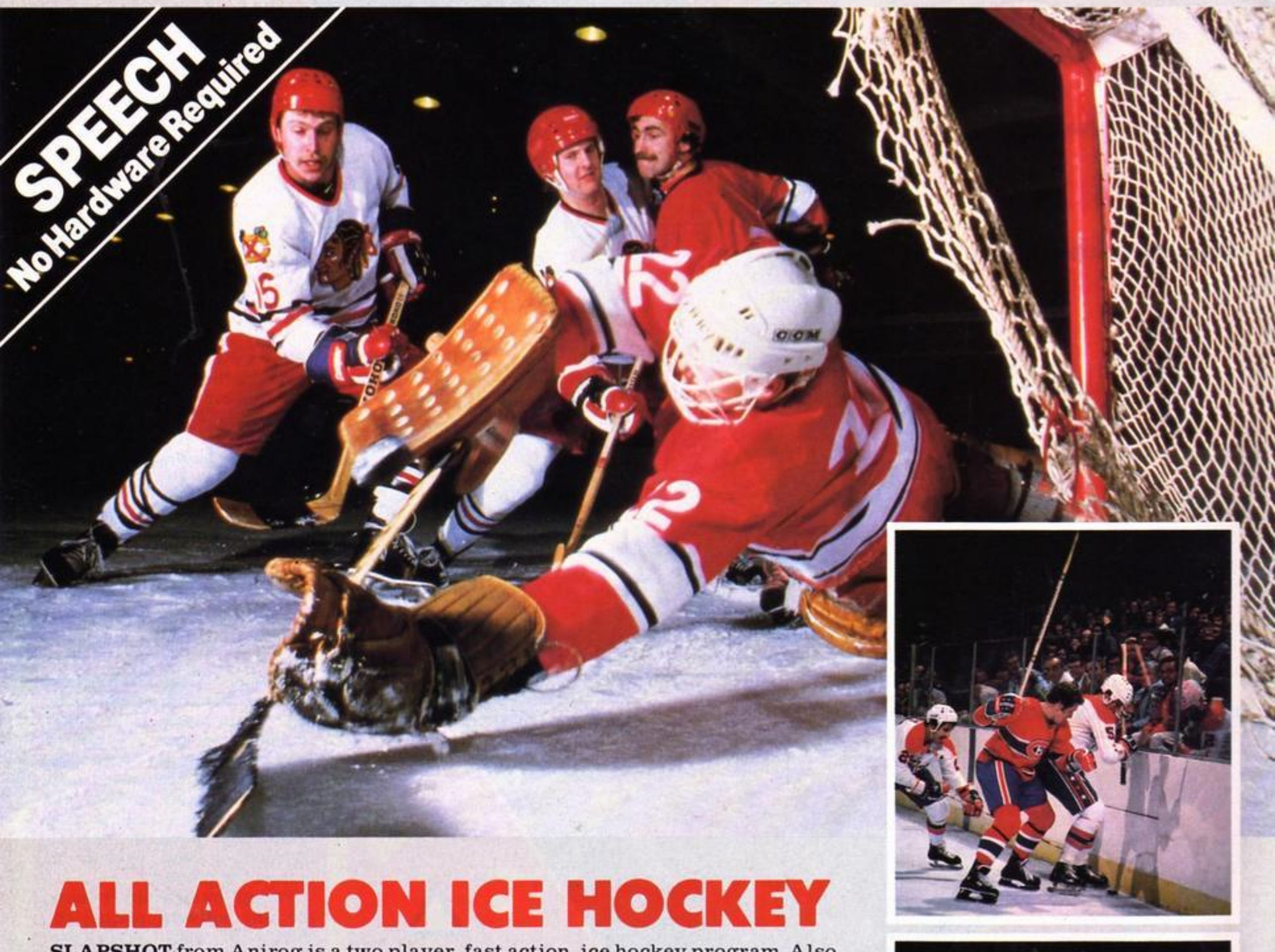
It is software houses who suffer when a company crashes because they may be owed large sums of money. In an attempt to prevent this Automata decided to supply the program only to those distributors who pay as they order. This policy has prevented the company from risking it's future but resulted in a number of distributors refusing to buy the game.

Continued on page 5

FAST AND FURIOUS

SLAP SHOT

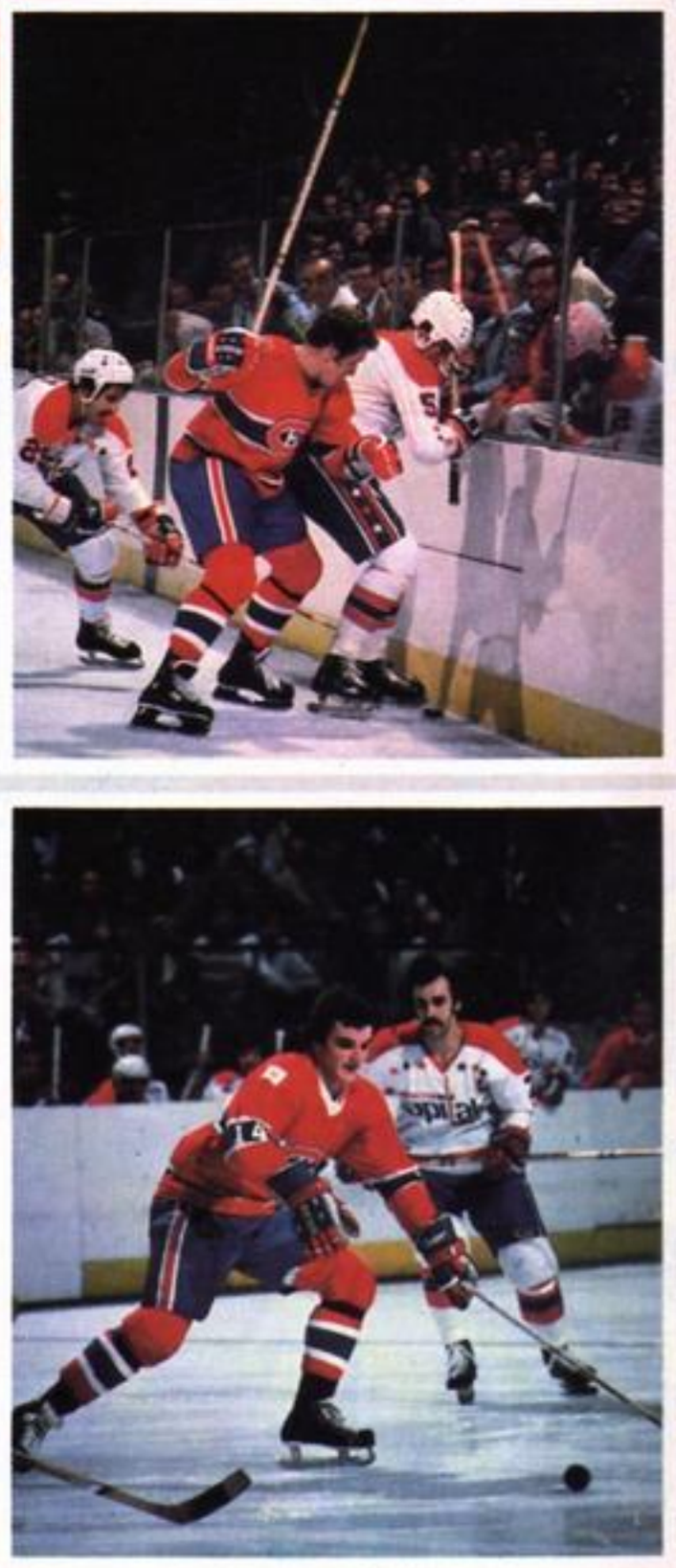
ANIROG



ALL ACTION ICE HOCKEY

SLAPSHOT from Anirog is a two player, fast action, ice hockey program. Also in this thrilling game there is included a smoothly running speech synthesis system of the very highest quality. Before the actual game starts each player must select an international hockey team to represent. After doing this you must quickly and skilfully manoeuvre your man across the glistening ice whilst your other team-mates move automatically around the rink waiting for you to pass the puck to them. If you do manage to race past the opposing defence then you have a chance to shoot for goal and score. However, you still have the goalie to beat who is able to dive in all directions. Also included in this amazingly quick and totally original game is the ability to actually physically bodycheck your opponents. Never the less, do not be too aggressive otherwise you could incur a "roughing penalty", resulting in a faceoff in your own end, giving the opposing side an easy chance of scoring. Also other extra features available include: Pause mode, and three levels of play ranging from fast to slow as well as a re-start option. Slapshot from Anirog is a totally original two player game with lightning fast action never seen before on the Commodore 64.

Two J.S. Commodore 64 Cassette £8.95 Disk £10.95



Trade Enquiries: ANIROG SOFTWARE LTD. UNIT 10 VICTORIA IND. PARK VICTORIA ROAD DARTFORD KENT (0322)92513/8
Mail Order: 8 HIGH STREET HORLEY SURREY 24 HOUR CREDIT SALES HORLEY 02934 6083

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Home Computing WEEKLY

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Non-starter wins race

From front page

'With this program we wanted to show the industry that there is a great deal more in home computer technology than has been used before', commented Christian Penfold, a partner with Automata. 'Basically we won this award because we kept our mouths shut. Too many people shout about mediocre products, we waited for them to tell us how good it was.'

The game is based around the concept that you are assisting in the creation of life with the aid of the computer. It is sold as a two cassette pack one containing the program and the other a soundtrack synchronised to the computer game. There are a number of stars on the soundtrack, Frankie Howard, Ian Drury and Jon Pertwee all making distinctive contributions.

"We hope that the award will give the program a second lease of life, but we won the same award last year with Pimania and that still wasn't handled by the large distributors.' commented Mr Penfold.

Program of the Year 1985

There were a number of other awards presented at the ceremony including: Programmer of the Year (leisure) which went to Elite's Ian Bell and David Braben; Program of the Year (utility) presented to White Lightning; Programmer of the Year (utility) awarded to Locomotive for Amstrad BASIC; Program of the Year (educational) won by ASK for Podd.

The hardware prizes were given to Amstrad for the CPC464 computer, voted Product of the Year (computers) and to Rotronics for Wafadrive as Product of the Year (peripherals).

Automata, 27 Highland Rd, Portsmouth, Hants PO4 9DA

High Street Price Wars

From front page

A spokesman for Boots contradicts this view. 'Smaller memory machines are less popular now due to the fall in price of the larger memory models.' 'We were not over-stocked after Christmas, but believe that our prices must be competitive.'

Boots is also extending it's Price Pledge to this item, so if you buy from Boots and find you could have bought cheaper within seven days in the same town, Boots will refund the price difference.

W H Smith has also dropped the price, but only to £119.95.

The fall in price seems to be due to the recent price slashing of both Acorn and Sinclair computers which has thrown the high street into disarray.

The changes came so quickly for some of the stores that they were relying on hand written price cards for their computer lines, because there was no time to print up the new ones.

Jack Tramiel, boss of Atari, has also waded into the price cutting flood.

He has announced the Atari Starter Pack, comprising the Atari 800XL 64K a 1010 program recorder and cassette versions of Pole Position, Invitation to Programming 1 and a graphics demo.

This means you will be able to choose from three machines all at £129.95: the Spectrum, Atari and the Electron with 48K, 64K and 32K respectively. It will be interesting to see who wins and who loses in this battle of the giants.

Atari, Railway Terr, Slough, Berks SL2 5BZ

Another £129.95 computer pack

Jimmy Savile receives the Hit Bit for Stoke Mandeville

In a good cause

Sony UK has donated a Hit Bit MSX computer for the use of patients in Stoke Mandeville Hospital. The presentation was made to Jimmy Savile, well-known for his association with the hospital.

The remote control joystick is particularly useful for disabled or bedridden patients, according to Sony.

The machine will be used in the new craft centre of the Spinal Injuries Unit, where patients learn new skills.

Sony also presented software and peripherals with the new MSX.

Amstrad sorcery

Virgin Games has just released a new version of the game Sorcery. Originally for the Spectrum, it's now available on the Amstrad CPC464.

The game comes complete with Virgin's new fast loader Fastload, and is priced at £8.95.

Virgin Games, 2-4 Vernon Yd, Portobello Rd, London W11 2DX

Available on both cassette and disc, the game costs £9.95 and £12.95 respectively.

US Gold, Unit 10, Parkway Ind Centre, Heneage St, Birmingham B7 4LY

Bigger and better

Rocket from Alligata, for the C64, is to be relaunched in a slightly modified version.

Originally released in autumn 1984, Alligata is confident that this time round it will be significantly more popular. Alligata describes the game as 'excellent and extremely difficult to master'.

The new version includes a reduced skill amateur level and a joystick facility, both unavailable on the original. There is also a free poster. The game costs £7.95.

Alligata, 1 Orange St, Sheffield S1 4DW

Slave trade

A & F Software has moved into the firmware market with the introduction of a new 16K EPROM for the BBC called The Slave.

According to A & F, the product encompasses all the good points of those ROMs which are already available, plus more indispensable routines for the programmer. It comes with a 64-page manual called The Slave Drovers' Guide.

The Slave will cost £49.95 and will be available initially by mail order only.

A & F, Unit 8, Canalside Ind Est, Woodbine St East, Rochdale, Lance OL16 5LB

FAST bill makes progress

Legislation against piracy came one step closer to reality with the second reading of the Copyright (Computer Software) Amendment Bill in the House of Commons on Friday, February 22.

The bill was proposed by William Powell, Conservative member for Corby, on behalf of FAST, the Federation Against Software Theft.

If the bill becomes law, software pirates face possible imprisonment of up to two years and unlimited fines. William Powell quoted the amount of revenue lost to software houses as £150m in 1984.

The new law would provide protection for both business and leisure software. Donald McLean, FAST chairman, stressed that those who risk prosecution once the new law is passed will be the thieves who copy and then sell software.

And FAST directors are anticipating an unopposed passage of the bill. Once it has been debated at the second hearing, it is discussed by a special committee, and goes before the Commons one more time, before being referred on to the House of Lords and then finally comes before the Queen.

FAST was set up in July and William Powell's backing was established in November. He is proposing the Copyright (Computer Software) Amendment Act as a private member's bill. Mr Powell explained that approximately 500 members' names go into a hat at the beginning of a session, and six are pulled out, with the guarantee of a second hearing. His name was the sixth.

The new copyright act will establish the protection of all software, whether or not it existed before the bill becomes law. The issue in question is whether intellectual property can be copyrighted.

William Powell commented: 'The problem of software piracy has reached epidemic proportions worldwide, and FAST is not unique. Similar organisations have been set up in Canada, Australia and the United States.

'The Copyright (Computer Software) Amendment Act means that all doubts in lawyers' minds will be erased. The police will be given the power to search, and since the video copyright act came into being, it is estimated that two-thirds of the piracy in that

Keith Halliwell, inventor of Safe Load

industry has been eradicated.'

He went on: 'This bill is therefore an immensely important projected change. A possible £100m can be saved with the enforcement of the new law.'

Roger Tucket, FAST director, said: 'Computer games have a shelf life of about three months. Within a week of a game being released, a pirated version is taken. We know of 10 or 12 operations in existence. These are people who were operating as pirates of sound recording, and who have found that copying software is more lucrative and safer.'

He continued: 'We estimate that 30 per cent of games are counterfeited. Once the trading standards officer is able to enforce the law, the problem of software theft should be minimized.

'Software cassettes have to carry some form of identification, like a hologram or a magnetic imprint. There must be some means of recognising authentic cassettes.'

● Safe Load, 'the ultimate anti-piracy system' was demonstrated recently at the Houses of Parliament.

Maplin Electronics, who developed the system, showed how a physical change in the design of a computer cassette would make it impossible for anyone to make a working back-up copy.

Numerous software houses expressed an interest in the system which could put an end to software theft, current estimates of which vary from £30m to £100m.

Home Computing Weekly has agreed, with the co-operation of a couple of software houses, to monitor the system and investigate the claims made about it.

FAST, Chancery House, Chancery Ln, London WC2A 1QU

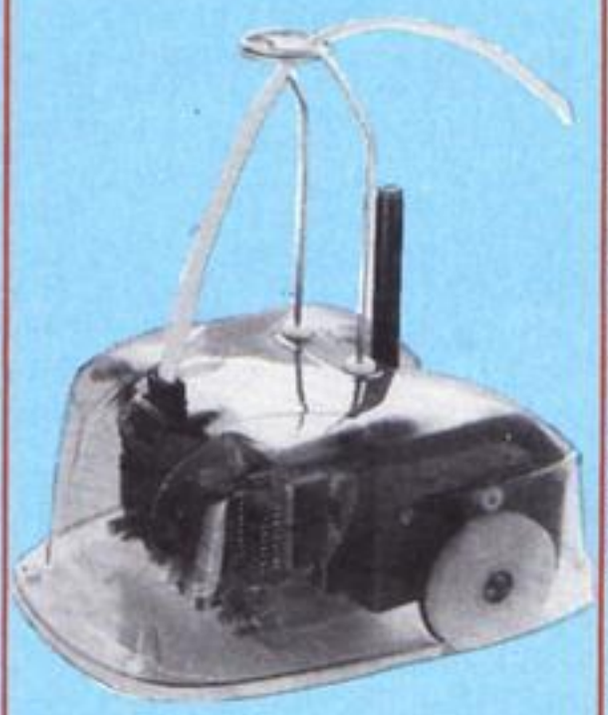
Maplin, PO Box 3, Rayleigh, Essex SS6 8LR

Robots for all

Intergalactic Robots launched the new Zero 2 which is the first real robot under £100.

Interfaces for the C64, Spectrum and BBC are already available and also a universal interface for machines with an RS232 interface.

At the moment the connection to the computer is by an umbilical cord, but there are plans for an infra-red connection in the near future.



The Zero 2, 'the first true robot under £100'

The software available is all education or entertainment based, but other useful programs are in the pipeline.

The robot differs from turtles in that a number of add-ons are possible. Speech is a real prospect. Robin Bradbeer, managing director, suggests that the day when the robot greets your guests at the door is now foreseeable.

Controlling the robot is simple and it is possible using just a few lines of BASIC. There are a number of LOGO programs available from other suppliers, including Sinclair's Spectrum LOGO, Logotron's BBC LOGO and a version for the C64. Sir Clive Sinclair described the Zero 2 as 'a very innovative product' and added that 'it should do much to introduce robotics into homes and schools'.

It includes a drawing system with pen up and down commands. LEDs to be switched on and off, a two-tone horn and a line follower. Future ideas include a bump detector and a hole sensor. The aim of the hole sensor is to prevent the robot falling off a table.

Intergalactic Robots, Unit 208, Highbury Workshops, 22 Highbury Grove, London N5 2EE

Present = prize

Ian Etheridge bought some Ariolasoft games and won an £800 computer in the monthly prize draw. The prize was a Commodore SX-64 portable computer. 'Now my nephews can have the old Commodore machine and I'll use the SX-64' said Ian.

There will be prize draws every month until May, each with the same prize.

Ariolasoft, Asphalt Hse, Palace St, London SW1

Soft Aid finalised

Soft Aid, the software industry's response to the Ethiopian appeal, has now released details of the titles on the tapes.

The Commodore 64 tape will contain Gumshoe (A&F), Pitfall (Activision), Star Trader (Bug-Byte), Kokotoni Wilf (Elite), China Miner (Inter-

Ian and nephews collect their prize

ceptor), Gilligan's Gold (Ocean), Fred (Quicksilva), Gyropod (Taskset), Falcon Patrol (Virgin) and Flak (US Gold).

The Spectrum titles will be: Spellbound (Beyond), Starbike (The Edge), Kokotoni Wilf (Elite), Pyramid (Fantasy), Horace Goes Ski-ing (Melbourne House/Psion), Gilligan's Gold (Ocean), Fred (Quicksilva), Gryropod (Taskset), Falcon Patrol (Virgin) and Flak (US Gold).

The tapes will cost £4.99 and around £2 of this will go straight to the fund. They are being distributed at no cost and retailers have agreed to accept reduced margins. Advertisements have been donated by leading publishers including Argus Specialist Publications.

Quicksilva, Palmerston Pk Hse, 13 Palmerston Rd, Southampton SO1 1LL

Spectrum discs plus

Users of the Sinclair Microdrive will soon have an alternative courtesty of Opus.

Opus' Discovery 1 will offer a 3½-inch disc drive and a whole range of other ports. These will include a joystick interface, a parallel printer port, monitor output, a through connector for other peripherals and an on board power supply.

The Discovery will only be available through Boots and there will also be a range of software developed especially for the system.

There are no price details yet but Opus claims the price 'will be a pleasant surprise for buyers and an unpleasant shock for competitors.'

All the facilities are housed within the unit so this may mean the end of all those boxes daisy chained away from the Spectrum's edge connector.

Opus Supplies, 158 Camberwell Rd, London SE5 0EE

Quicksilva springs ahead

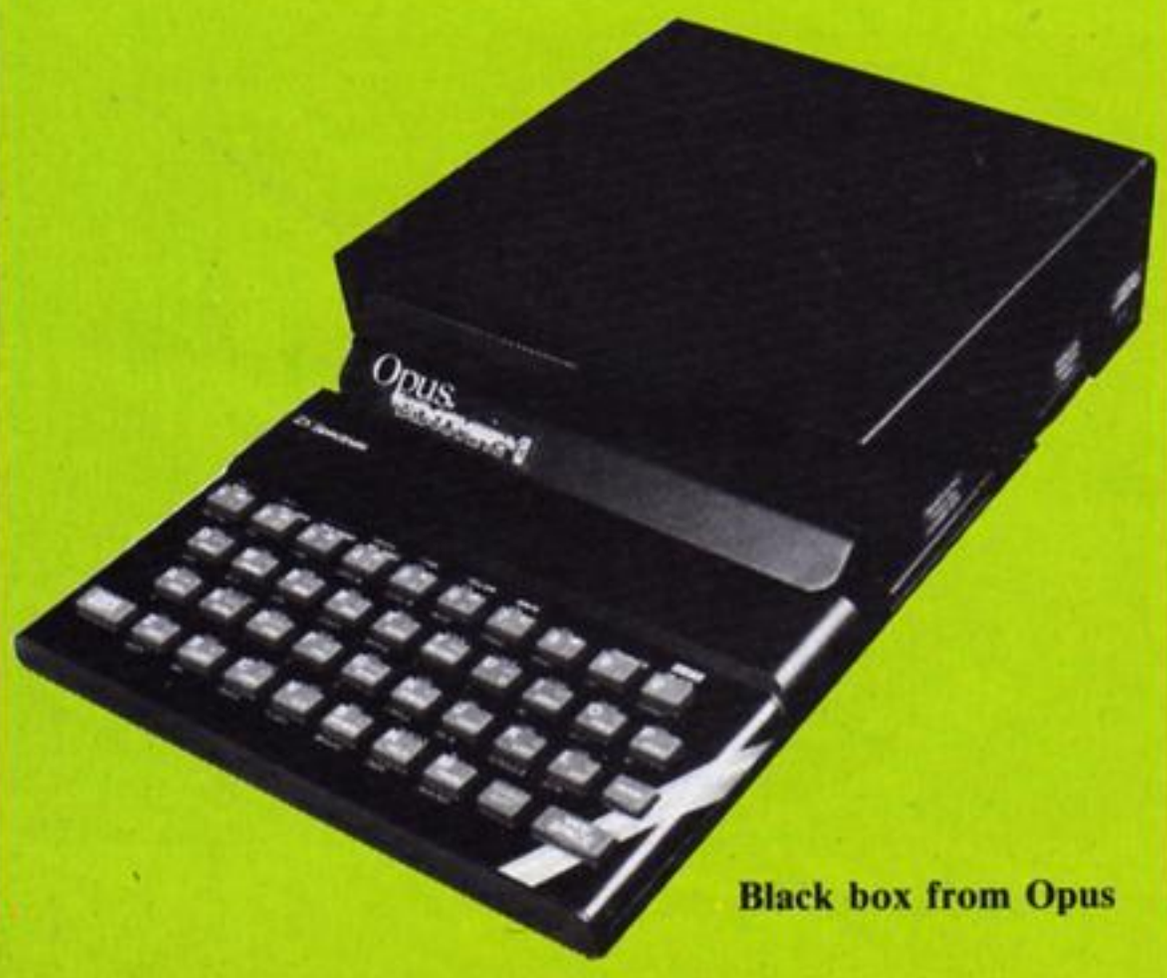
Quicksilva has released five new games for the spring market. Only one is a new program.

The new game by Tony Crowther, the author of Black Thunder, is called Gryphon. Quicksilva claims it is 'an arcade fairytale'. You control Gryphon in his attempt to recover his hoard of gold which is threatened by the Id monsters. He is armed with bolts of magic and carries gold in his beak to use as stepping stones across the poisonous waters.

Castle of Jasoom and Dungeons of Ba are two titles released under licence from Accelerated Software. Both are arcade adventures with fully animated graphics involving complex maze systems. The central character in both games is Normal the Warrior and the action takes place in a fantasy land of the middle ages. Both are for the C64 and need disc drive and joysticks. Price: £12.95.

The final offerings are conversions of Spectrum games for the MSX computers, the first from Quicksilva. They are The Snowman and Boogaboo the Flea. Other titles planned for MSX are Ant Attack, Games Designer, Fred and Sprite Editor.

Quicksilva, 13 Palmerston Rd, Palmerston Park Hse, Southampton SO1 1LL



Black box from Opus

Prices fall down

Livewire has slashed the price of it's Commodore software.

'We started with quite high-priced software', said sales director Alan Lee, 'but as demand started to fall we reduced our prices slightly.'

Now the prices are at the lowest level and most of the range will be between £3 and £1.50. This will bring Livewire into direct competition with other budget ranges such as Mastertronic and Firebird.

Livewire is also releasing a C64 value-pack containing four titles at £9.95. The titles will include some best-sellers including Jumpin' Jack, Triad and Invaders.

The company is developing games for the C16, but there are no firm prices or release dates for these.

Livewire Software, Royal London Hse, 198 Deansgate, Manchester M3 3NE

New York or bust

Virgin Games is offering a prize to the first player of Sorcery to find the gateway to New York.

You must collect some rather strange objects including a suitcase and a camera and battle with the necromancer and his servants.

The prize is two return tickets to New York on Virgin Airlines. There is a screen showing the aeroplane Maiden Voyager in which the winner will travel. All you have to do is take the objects to that screen and await instructions.

Virgin, 2-4 Vernon Yd, 119 Portobello Rd, London W11 2DX

Mersey progs flow on

Insight is a Merseyside company writing programs for the Spectrum and the first game will be released on March 4 and is called Subteranean Stryker.

It's a fast action game with 40 screens and Insight claims it needs a great deal of manual dexterity. You must guide your craft around the caverns within the planet.

There are numerous objects to avoid and a host of enemies to be destroyed. You are also warned of the moles.

Insight, 177 Higher Parr St, St Helens, Merseyside WA9 1AG

A ton of winners

There were eight differences in our Hewson Consultants Competition. There were 100 winners: R Knowles, Corby; L R Hambleton, Nottingham; B C Steele, West Drayton; Liam McKay, Northumberland; D Russell, Warminster; Rev Peter Wright, Hexham; Matthew Paveley, Greys; Darren Line, Milton Keynes; Garry Bates, Yardley Wood; Shaun Clark, Portsmouth; John Sweeney, Solihull; B Hindmarsh, Washington; A Foxall, Shard End; Dean Slack, Rotherham; Steve Blanks, Guildford; M Payne, Taunton; Robert Middleton, Teignmouth; Paul Oakley, South Benfleet; Alistair Macdonald, Sale; J S Almey, Grimsby; Nick Bell, Glasgow; James Overy, Southend; Graham Persson, Leith; K Chua, Birmingham; Andrew Casson, Dalton in Furness; J Carchrie, Bishopton; Robert Kay, Ashton U Lyne; Richard Gorodecky, Wembley; Andrew Bird, Derby; Stephen Foy, Barnehurst; A R Perry, West Bromwich; Gerald Edson, Peckham; Steven Tait, Glasgow; B D Everingham, Romford; S P Ansell, Dartford; Andy Stone, Brislington; Anthony Goodhall, Lichfield; Nick Smith, Nuneaton; Mark Pepperrell, Feltham; Alan Hubbard, Leicester; P C Moore, Burbage; G D Young, Harrow; G H Dolderson, Dronfield; Steve Cox, Heanor; Robin Ayres, Cheltenham; J S Robbinson, Stevenage; Richard Hirst, Huddersfield; M A Shorter, Grantham; Steven Dean, South Normanton; M J Gough, Hersham; Lee Goodwin, Stockport; J R W Clayden, Plymouth; John Johnson, Wigan; D C Lincoln, Meanwood; David Marsden, Wigan; Stephen Collinge, Rossendale; D Lloyd, Sittingbourne; Kevin Ryan, Surrey; Peter Boswell, Cardiff; R Jessop, Inverness; Paul Kaylor, Manchester; D Tidley, Newport; Euan Pearson, Kilmarnock; C Wiffen, Gt Dunmow; David Taylor, Huddersfield; Andrew Brownlee, Brentwood; J Howells, Pontypool; M Sanaullah, Balham; M Marrawer, Dartford; Zamir Hyder, Croydon; Ron Sproston, Thirsk; Graeme Smith, Eston; Steven Wardle, Leicester; Paul Patterson, Aberdeen; R Francis, Ramsgate; Kim Yarwood, Hatfield; Barry Atkinson, Darlington; Paul Walden, Chingford; Chris Crane, Trentham; M Graham, Congleton; P Houlton, Windle; L R Wainman, South Shields; M J Hillier, Trowbridge; K Williams, Clevedon; Bo Attrup-Thomsen, Denmark; Kynan Webb, Bournemouth; Maes Rudy, Kasterlee; Stephen Worsnop, Harrogate; G Peacock, Peterborough; J V Froggatt, Verwood; Steven Owen, Anglesey; Claire Marshall, Wigan; Karl Wyer, Nottingham; Stephen Turner, Belvedere; Rachel & Jonathan Moate, Selsdon; M C Poynter, Aldershot; Chris Chouls, Newport; Peter Whelerton, Normanby; A Reid, Sutton; B Johns, Cumbria.

Jamboree of prizes from English Software

There's something for nearly everyone this week in English Software's competition. All you have to do is unscramble the anagrams

ENGLISH SOFTWARE™
ENGLISH SOFTWARE™
ENGLISH SOFTWARE™
ENGLISH SOFTWARE™
ENGLISH SOFTWARE™

In this week's competition we are offering 100 prizes from English Software. If you own a C64, Atari, BBC, Electron or Amstrad CPC464 then there could be a treat in store for you.

Depending on which computer you own, you will receive one of the following prizes: Colossus Chess 3.0 for all 48K Atari computers (£9.95); one volume of Atari Smash Hits, which is a 32K Atari cassette (£14.95); Henry's House for the C64 (£8.95); Jet Boot Jack for the BBC, Electron and C64 (£7.95) and for the Amstrad (£8.95); Witchswitch for the C64 (£8.95) and Legend of the Knucker-Hole for the C64 (£9.95).

Colossus Chess 3.0 is English Software's latest title and was written by Martin Bryant, a computer chess programmer with seven years' experience. According to English Software, the program has a perfect understanding of all the rules of chess, including underpromotions, the fifty move rule and all draws by repetition. It also handles all the standard mates, including King and two Bishops against King, and the very difficult King Bishop and Knight versus King.

There are three volumes of Atari Smash Hits, each containing five games including some of English Software's most successful titles, for instance Jet Boot Jack, Dan Strikes Back and Diamonds.

Henry's House is a platform game in which you must glide Little Henry around the royal household to learn the secrets of each room. Jet Boot Jack is also a platform game in which Jack, the space age jogger zips his way through a record pressing plant. Legend of the Knucker-Hole also features Jack. This time he must fight a dragon in order to marry a princess. Witch Switch is an arcade game featuring leprechauns, evil birds with pebbles and monkeys.

If you think you'd like to win one of these games then put on your thinking cap and try and work out the anagrams. You've got nothing to lose and maybe a lot to win.

Anagrams

roast few
shingle
u rotten fib
am coin pilot
ten u read
scrag hip

How to enter

Study the list of words. They are anagrams of words connected with computers and English Software. Unscramble the anagrams to find the words.

Write your answers on the coupon in the space provided. Fill in the coupon clearly, writing your full name and address. Print legibly — if you are a winner the coupon will be used as a label on your prize. **Important:** now write your answers on the back of your sealed envelope.

Send your entry to: English Software Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date is first post on Friday 22 March, 1985.

You may enter as many times as you wish, but each entry must be on an official coupon — not a copy — and sealed in a separate envelope.

Prizes will arrive from English Software within 28 days of the publication of the results of the competition.

The rules

Entries will not be accepted from employees of Argus Specialist Publications, English Software and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The How to Enter section forms part of the rules.

English Software Competition

Entry Coupon

Name _____

Address _____

_____

_____

_____ **post code** _____

Computer owned: C64, Atari, BBC, Electron, Amstrad CPC464 — Ring one

Answers

1 _____

2 _____

3 _____

4 _____

5 _____

Complete clearly and fully — if you are a winner this will act as a label for your prize. Post to English Software Competition, Home Computing Weekly, No. 1 Golden Square, London W1R 3AB. Closing date: first post, Friday 22 March, 1985. Don't forget to follow closely the advice in the How to Enter section, including writing the unscrambled anagrams on the back of your envelope.

TOP 20 Software

Compiled by Gallup

HCW is proud to present the Gallup software chart — the one to believe in. Gallup's reputation as a credible market research company is second to none. This software study is carried out nationwide in both independent and chain stores, on a weekly basis. This is chart to watch out for — the one you know you can trust.

Week Ending February 12, 1985

LAST WEEK	MOVE	THIS WEEK	TITLE	PUBLISHER	SPECTRUM	CBM 64	BBC	ELECTRON	VIC 20	AMSTRAD	ATARI	OTHERS
1	●	1	Ghostbusters	Activision	•	•					•	
5	▲	2	Zaxxon	US Gold	•	•	•			•	•	
2	▼	3	Daley Thompson's Decathlon	Ocean	•	•						
3	▼	4	Booty	Firebird	•	•						
8	▲	5	Football Manager	Addictive	•	•	•	•				•
13	▲	6	Airwolf	Elite	•							
20	▲	7	Jet Set Willy	Software Projects	•	•						•
7	▼	8	Manic Miner	Software Projects	•	•	•			•		•
4	▼	9	Technician Ted	Hewson Consultants	•					•		
9	▼	10	Hunchback II	Ocean	•	•						
17	▲	11	Hunchback	Ocean	•	•	•	•	•			
24	▲	12	Blue Max	US Gold	•	•					•	
15	▲	13	Flight Path 737	Anirog	•	•	•	•				•
6	▼	14	Blockbusters	Macsen	•	•	•	•				
19	▲	15	Match Day	Ocean	•							
40	▲	16	Brian Bloodaxe	The Edge	•						•	
35	▲	17	Chiller	Mastertronic	•	•						
16	▼	18	Monty is Innocent	Gremlin Graphics	•							
11	▼	19	Pyjamara	Mikro-Gen	•	•					•	
10	▼	20	Elite	Acornsoft			•	•				

SPECTRUM Top Ten

1	**Ghostbusters**	Activision
2	**Zaxxon**	US Gold
3	**Airwolf**	Elite
4	**Booty**	Firebird
5	**Daley Thompson Decathlon**	Ocean
6	**Match Day**	Ocean
7	**Technician Ted**	Hewson Consultants
8	**Brian Bloodaxe**	The Edge
9	**Monty is Innocent**	Gremlin Graphics
10	**Jet Set Willy**	Software Projects

BBC Top Ten

1	**Elite**	Acornsoft
2	**Football Manager**	Addictive Games
3	**Sabre Wulf**	Ultimate
4	**Eddie Kidd Jump Challenge**	Martech
5	**Jetpac**	Ultimate
6	**Hunchback**	Ocean
7	**Chess**	Acornsoft
8	**Return to Eden**	Level 9
9	**Blockbusters**	Macsen
10	**Manic Miner**	Software Projects

COMMODORE Top Ten

1	**Ghostbusters**	Activision
2	**Raid Over Moscow**	US Gold
3	**Frak!**	Statesoft
4	**Bruce Lee**	US Gold
5	**Daley Thompson Decathlon**	Ocean
6	**1985 the Day After**	Mastertronic
7	**Football Manager**	Addictive Games
8	**Zaxxon**	US Gold
9	**Booty**	Firebird
10	**Beach Head**	US Gold

Compiled by Gallup for the industry's weekly trade magazine, Computer and Software Retailing.
For details contact John Sorrenti, Computer and Software Retailing, No. 1 Golden Square, London W1R 3AB. 01-437-0626

Flight Path
BBC B
£20.30

Storm Software, Newbury Ct, High St, Gillingham, Dorset

No, it's not another flight simulator to see how many ways you can crash a plane. It's a pleasant way of learning and practising European geography, economics and maths.

The procedure involves choosing your plane (Jumbo, Tristar or Boeing 757), departure and destination and any stops en route and deciding the range and bearing of the flight. Prevailing wind speed and direction may have to be allowed for. Having made your choices, you watch the plane fly across the hi-res map along your chosen flight path.

On landing, you receive a flight report comparing the chosen settings with what they should have been, and a balance sheet to see if the journey was profitable. Landing in a field away from the airport incurs recovery costs. You also pay for fuel, lateness and hire of the plane.

The program is aimed at 10-15 year olds. Overall the instructions are good. My only real criticism is the price. I'd say it's about £12 worth, not over £20. It is on disc. **B.J.**

instructions	90%
ease of use	85%
display	85%
value for money	60%

★ ★ ★

Identify Europe
BBC B
£7.95

Kosmos, 1 Pilgrim's Close, Harlington, Dunstable

Europe consists of 27 countries and 17 seas. There, it does have some educational value. I didn't know that until I tried this program.

Like so much educational software, this is interesting and well-structured practice in reproducing information previously committed to memory.

It is in two parts, one tests countries and/or capitals and the other, seas. There is an excellent hi-res map of Europe and the multi-choice test allows you to choose how many guesses are allowed from the alternatives, and how many questions are in the test. The handling of wrong answers is good. If you answer that Zurich is the capital of Switzerland, you get: 'No, but Zurich is in Switzerland'.

My only criticism is about the demonstration option. Nice to have one, but it's too like the actual test. It waits for an answer, then supplies you with the right answer after a few seconds. It doesn't explain what's happening or demonstrate what happens to a mistake.

But really, the printed instructions are so full that I shouldn't complain. **B.J.**

instructions	92%
playability	93%
display	88%
value for money	90%

★ ★ ★ ★

Computer tutor

With these programs you can enjoy yourself whilst you pick up useful information

Time Tutor
TI-99/4A
£6

Maple Leaf Microware dist by Stainless Software, 10 Alstone Rd, Stockport

The documentation for this educational utility is the cassette inlay, containing all necessary operating instructions. The program teaches Time at four levels: o'clock, quarter hours, minutes past and to the hour, and minutes past for the full hour. Each tutorial is followed by a quiz, and the lesson is then re-presented or advanced to the next level.

Graphics are slow but effective, with a tidy display of both analogue and digital representations of time. Clues are given as to the number of digits in an answer, helpful for the child who is unsure.

There is one small fault. The wording of the information provided on-screen is too advanced for the smaller child; at times the level of English employed seemed more suited to a young teenager. All in all, this is very useful for the parent searching for educational software which will make the computer more than just a toy. **P.B.**

instructions	85%
ease of use	85%
display	85%
value for money	40%

★ ★ ★

Quiz Package
TI-99/4A
£4.95

B Jackson, 21 Rowan Way, New Balderton, Newark, Notts

This educational utility comes in three parts: a Question and Answer file-maker, a Quiz Master program, and a General Knowledge sample quiz file. The latter is supplied to illustrate what can be obtained.

The Question and Answer file-maker allows you to create your own quiz, or revision test. There can be up to 50 questions and answers, each question a maximum of 52 letters and the answer up to 26 letters.

The sparse documentation warns you not to use one particular character — but fails to specify which one. There is confusion due to inconsistent labelling.

The Quiz Master is used in conjunction with the files, but best use of TI BASIC has not been made, and execution times are extremely slow. Mimicking routines for ACCEPT AT and DISPLAY AT have been used in TI BASIC, but there is a distinct lack of editing control which is expasperating. For this reason, the programs are probably better run under Extended BASIC with it's superior facilities **P.B.**

instructions	10%
ease of use	35%
display	60%
value for money	40%

★

Spelling and Phonics Tutor
TI-99/4A
£6

Maple Leaf Microware dist by Stainless Software, 10 Alstone Rd, Stockport

This is the first program I have discovered to make use of the TEXT-TO-SPEECH facility of the Terminal Emulator II. It provides reading and spelling exercises using words and phrases created with DATA statements.

The pace of speech output can be selected by the student to suit his or her ability. This means the gaps between words are either long or short. The words are all spoken quickly. Reward graphics with scoring provide motivation for the student.

A series of phrases is subsequently tested in a quiz. Questions are shuffled in order to increase effectiveness, unanswered questions re-presented at the end. The quiz doesn't finish until all questions have been correctly answered.

Phrases and words must be incorporated in DATA statements in two forms: those to be displayed, and those to be spoken. While the speech produced is adequate for the American market, it may not be suitable for the UK. There is also a lack of adequate keyboard debouncing, which could be readily provided.

This program needs Terminal Emulator II and Speech Synthesizer. **P.B.**

instructions	85%
ease of use	80%
display	85%
value for money	60%

★ ★ ★

LET 1985

The LET exhibition is usually supported by a good turnout — of both exhibitors and attendants. Here's a rundown of the main points

The LET show ran from February 17-19 at Olympia, London. It's a show which is organised by LET magazine for the computer and software retailing trade, and a number of companies took the opportunity to announce new products. In this feature we bring you the highlights.

David Crane, author of **Activision**'s Ghostbusters, made a personal appearance on Sunday. Activision announced 10 new games: UK managing director Geoff Heath described Activision's spring range as 'as innovative as it is diverse'. He went on: 'Both our new company image and our new software lines reflect our overall strategy for 1985 — to broaden our base in the UK and encompass the widest possible market.'

A & F has produced a database generator Alpha Gen to supplement Alpha Beth. With Alpha Gen you can make up your own questions, and if you can create your own database, A & F is offering £100 if your version is suitable for publication. You can buy Alpha Beth and Alpha Gen separately at £5.75, or as a twin-pack at £9.95.

Also from A & F: Orpheus and Uranum Factor for the BBC (£6.90), while Dragon owners haven't been forgotten. Screaming Abdabs, also at £6.90, is an arcade game for the Dragon.

A & F was also showing the follow-up to chart-topping Chuckie Egg. Provisionally called Chuckie Egg 2, it involves the use of real objects as you move from screen to screen. There will be over 100 different screens and after you have carried a girder to this one, and a brick to that, you will probably be quite tired. Visitors to the show came away with a real surprise in the form of a chocolate egg containing a toy.

Look out for more about this game in future HCWs especially around Easter time.

Argus Press Software was showing the Spectrum version of Alien, as well as Give my Regards to Broad St, for C64 and Atari. Based on Paul McCartney's film of the same name, the game requires careful thought and strategic planning.

Artic announced a new joystick for the Commodore 16, costing £4.95. Also on the cards is a new range of budget-priced software, at £1.99.

Bubble Bus was presenting a new range of titles. There's Boardello for the MSX, Aquaracer for the Commodore 64 and Wizard's Lair for the Spectrum.

Bug-Byte was promising many new games in the next three months, including Automan for the C64 and Stay Cool for the Spectrum.

Parky and the Yellow Submarine was the star attraction at **CheetahSoft**'s stand. Parky is a penguin, and in the first of a planned series of games featuring the CheetahSoft Penguin, he searches for his lost brother on the sea bed. There are 91 screens which must be negotiated, sea creatures to avoid and various objects to collect. Price: £6.95.

Cheetah Marketing, sister company to CheetahSoft, was launching it's cassette/data recorder. At £29.95 it has integral DIN socket and could make life easier with the aid of one minor adaptation: instead of pressing both Play and Record you only need to

Kempston new joysticks

depress one Record key.

Talisman on the Spectrum was one of **Games Workshop**'s new releases. This fantasy boardgame is either for one or up to four players. Also from Games Workshop: D-Day for both QL and Commodore 64.

D-Day has been upgraded for the QL and includes over 200K of programming and 20K of computer intelligence. QL version costs £24.95, while C64 costs £8.95.

Gremlin was previewing Supersleuth, In Dam Trouble and Xargon Wars, while **Incentive** was exhibiting Moon Cresta, reviewed in HCW 100. Players were competing to win the original Moon Cresta machine.

Interceptor Micros was showing a large range of games. For the Commodore 64 there were Front Line, Break Fever, Bigtop Barney, Caverns of Sillach, Empire of Karn, Exmon and Crystal of Carus. Halaga and Heroes of Karn are for the Spectrum; Heroes of Karn and Choppr Squad run on the Amstrad CPC464, while Villain is for the VIC-20.

Kempston unveiled a new line of joysticks and interfaces. Top of the range is the Formula 1, based on the Pro 5000 series. It is self-centering and has dual fire buttons. Second in the range is the Formula 2, with pistol grip, top and base buttons.

The three new interfaces are the Kempston Joystick interface, Pro Joystick Kempston, Pro and Centronics E.

Llamasoft was exhibiting Psychedelia, while **Melbourne House**'s Hobbit has now been translated for the MSX and Amstrad. A line-up of arcade games and utilities was being previewed, with the emphasis on the C64.

Micro-Gen's Everybody's a Wally made it's debut at the show. This multi-role arcade adventure has you in charge of five main characters. It's happy family time, with four of Wally's friends and relatives helping him in his quest. Everyone's a Wally is available on the Spectrum, and C64 and Amstrad CPC464 versions are planned. Price: £9.95.

Mirrorsoft revealed it's conversions of Mr Men to Amstrad, MSX and Atari. Also new are a range of educational and arcade games for youngsters.

Ocean was showing it's range of chart hits: Daley Thompson's Decathlon, Gift from the Gods, Hunchback II, Kong Strikes Back and Match Day were all there.

Orpheus exposed it's first title for the Spectrum: Underworld — The Village. It's a text adventure written using the Quill, with 150 locations. Price: £4.95.

Also from Orpheus — Megabase, a database for C64 and Oric/Atmos. Available on cassette or disc, the program comes together with a comprehensive manual, and costs £24.95 for the Commodore and £17.95 for the Oric.

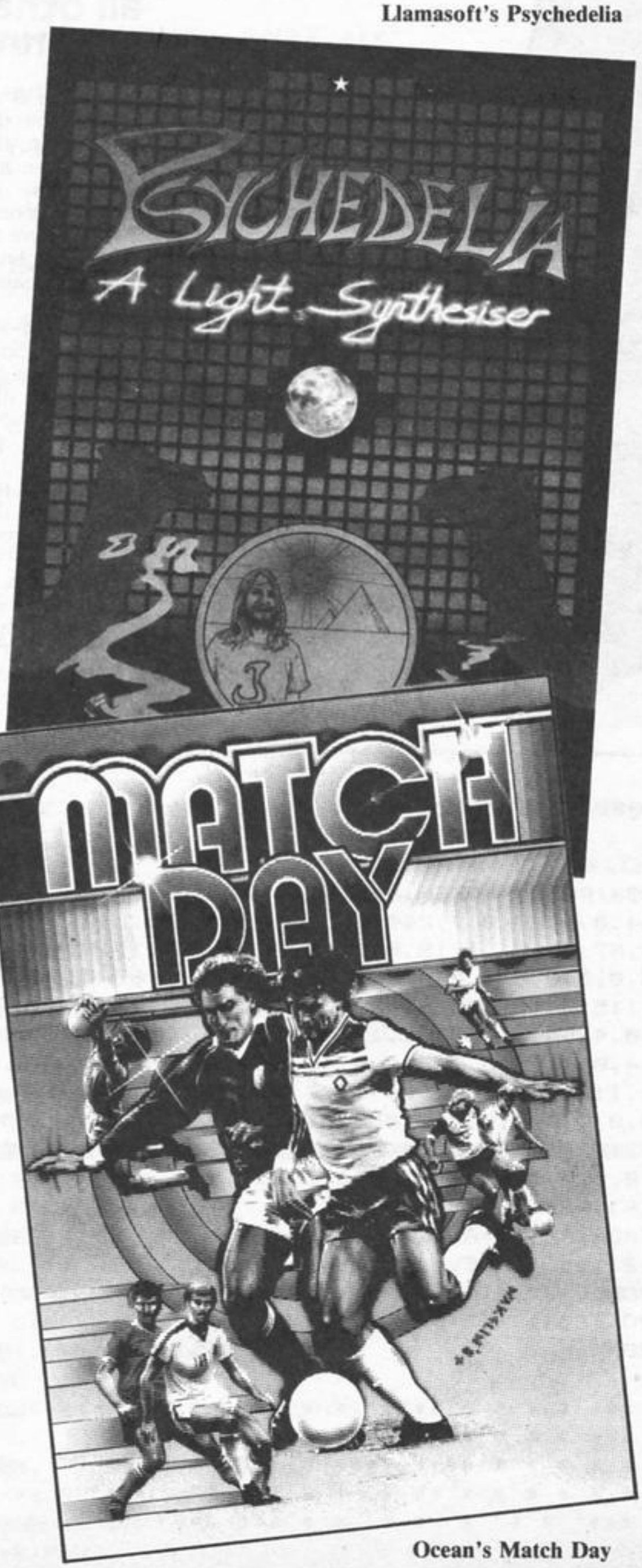
Protek was exhibiting it's own range of joysticks, as well as a language course for the Amstrad CPC464. Interfaces were reduced in price to £16.95.

Software Communications had Brian Jacks promoting his Superstar Challenge game, while another point of interest on the stand was the Living Body, which is initially available for the C64, with BBC version to follow.

Taskset had an Amstrad conversion of Jammin' and a preview of Super Pipeline II, while **Tymac** was showing off Flyer Fox, Gandalf the Sorcerer, Type-Snyper, Type-Snyper and Bio-Defence. For the most part, these are one-player 3D simulations.

Finally, **Vulcan** launched it's range of add-ons. Top of the range is the Gunshot joystick, while the Harrier is compatible with the BBC. Three interfaces will connect these joysticks to your computer, and the price ranges from £8.95 to £19.95. With these interfaces the Gunshot can be used with Spectrum, BBC and Electron.

Llamasoft's Psychedelia



Ocean's Match Day

Addresses

Activision, 15 Harley House, Marylebone Rd, London
A & F, Unit 8, Canalside Ind Est, Woodbine St East, Rochdale, Lancs OL16 5LB
Argus Press Software, Liberty House, 222 Regent St, London W1R 6AH
Artic, Main St, Brandesburton, Driffield YO5 8RG
Bubble Bus, 87 High St, Tonbridge, Kent TN1 1LS
Bug-Byte, Mulberry Hse, Canning Pl, Liverpool L1 8JB
CheetahSoft, 24 Ray St, London EC1R 3DJ
Games Workshop, 27/29 Sunbeam Rd, London NW10 6JP
Gremlin, Alpha Hse, 10 Carver St, Sheffield S1 4FS
Interceptor Micros, Lindon Hse, The Green, Tadley, Hants
Kempston, Singer Way, Woburn Rd Ind Est, Kempston, Beds MK42 7AF
Llamasoft, 49 Mt Pleasant, Tadley, Hants
Mikro-Gen, 44 The Broadway, Bracknell, Berks
Mirrorsoft, Holborn Circus, London EC1P 1DQ
Ocean, 6 Central St, Manchester M2 5NS
Orpheus, The Smithy, Unit 1, Church Farm, Hatley St George, Nr Sandy, Beds SG19 3HP
Protek, Clydesdale Bank Bldg, High St, South Queensferry, Edinburgh EH30 9HW
Software Communications, Martech Hse, Bay Terr, Pevensey Bay, E Sussex BN24 6EE
Taskset, 13 High St, Bridlington, Yorkshire YO16 4PR
Tymac, Temple Hse, 43-48 New St, Birmingham B2 4LJ
Vulcan, 200 Brent St, Hendon, London NW4 1BH

Downhill racer

You're the last skier in the downhill race. You're racing against the clock and against all other nations.

By Kenneth Burrell

The object of this game is to guide your skier between the green and blue gates in the fastest possible time. You are the last competitor in the downhill race and Britain's only entrant. The time you have to beat is set by the skill level selected, but levels don't alter the speed of the game.

There are 100 gates to ski around and, as in real-skiing, you can hit a post. If you hit a post too hard, you're disqualified, and you're also disqualified if you don't go through the gates.

Once you've completed the course, the computer resets the leader board to show your position.

This game uses a joystick in port two, and can easily be converted to keyboard control. One of it's features is the 'vision' display at the bottom right of the screen. This shows you where the next six posts will be on the screen, the top one being the closest. You will need to use this facility in order to be able to react in time to reach some of the gates.

Variables

PO x co-ordinate of left hand post (held in array)
R%, R$ used to form the vision display
V start of VIC-II chip
L level chosen
TN seconds over four minutes necessary to win
TN$ time needed to win in internal clock form
N$ name of competitor
X your x co-ordinate
Y co-ordinate of posts
F flag: post displayed? 1 = yes, 0 = no
PN number of posts passed
P value returned by joystick
T$ time taken to complete course

Hints on conversion

As the program uses three sprites, conversion to most micros is impractical. However, re-defined characters could be used, and most of the rest of the program retained.

```
4 REM CLR-WHT
5 PRINT"■":POKE53280,2:POKE53281,8
6 REM CRD
7 PRINT"■  K.BURRELL & H.C.W. PRESENT..."
10 FORN=16128TO16383:READA:POKEN,A:NEXT
20 DATA1,80,0,1,144,0,1,80,0,7,244,0,51,115,0,195,240,192,67,240,64,67,48
30 DATA64,67,48,64,67,48,64,1,16,0,1,16,0,1,16,0,1,16,0,1,16,0
40 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,186,1,80,0,1,144,0,1,80,0
50 DATA7,244,0,51,115,0,195,240,192,67,240,64,67,48,64,67,48,64,67,116,64,67
60 DATA48,64,1,16,0,4,64,0,4,64,0,17,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
70 DATA1,80,0,1,144,0,1,80,0,7,244,0,51,115,0,195,240,192,67,240,64,67,48,64
80 DATA67,48,64,71,112,64,67,48,64,1,16,0,0,68,0,0,68,0,0,17,0,0,0,0,0,0,0,0
90 DATA0,0,0,0,0,0,0,,,0,0,0,0,0,0,0,0,0,041,127,160,41,85,160,41,127,160,40
100 DATA0,160,40,0,160,40,0,160,40,0,160,40,0,160,40,0,160,40,0,160,0,0,0,0,0,0,0,0,0,0
110 DATA0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
115 DIMPO(100),R$(6),R%(6)
120 FORN=0TO100:READA:PO(N)=A:NEXT
160 V=53248:POKEV+21,255:POKEV+23,255
170 POKEV+28,255:POKEV+37,4:POKEV+38,3:POKEV+39,10:POKEV+40,5:POKEV+41,14
190 POKE2040,252:POKE2041,255:POKE2042,255
209 REM CLR-  3*CRD
210 PRINT"■■■■■"
220 PRINT"   ***  *** * * * *  * *  * * *   *"
230 PRINT"   *  * * * * * * ** * *  * * *   *"
240 PRINT"   *  * * * * * * ** * **** * *   *"
250 PRINT"   *  * * * * * * * ** *  * * *   *"
260 PRINT"   ***  ***  * *  *  * *  * * *** ***"
269 REM   2*CRD
```

```
270 PRINT"■■"
280 PRINT"          ***   *   ** *** ***"
290 PRINT"          *  * * * *   *   *  *"
300 PRINT"          *  * * * *   **  *  *"
310 PRINT"          ***  *** *   *   ***"
320 PRINT"          *  * * *  ** *** *  *"
339 REM   2*CRD
340 PRINT"■■                  PRESS ANY KEY"
350 GETA$:IFA$=""THEN350
359 REM CLR-CRD
360 PRINT"■■          *** DOWNHILL RACER ***"
369 REM   2*CRD
370 PRINT"■■   YOU MUST TRY TO BEAT A CERTAIN TIME"
379 REM CRD
380 PRINT"■ TO WIN THE 'DOWNHILL RACE'. "
389 REM CRD
390 PRINT"■    THE TIME THAT YOU MUST BEAT IS SET"
399 REM CRD
400 PRINT"■  ACCORDING TO THE FOLLOWING LIST OF"
409 REM CRD
410 PRINT"■  SKILL LEVELS:-"
419 REM   2*CRD
420 PRINT"■■   1. BEGINNER (BEND ZEE KNEEZ!)"
429 REM CRD
430 PRINT"■   2. INTERMEDIATE"
439 REM CRD
440 PRINT"■   3. EXPERT"
449 REM   3*CRD
450 INPUT"■■■   LEVEL";L:L=9-L
460 TN=INT(RND(1)*L)+20
465 IFTN<10THENTN$="00040"+RIGHT$(STR$(TN),1):GOTO480
470 TN$="0004"+RIGHT$(STR$(TN),2)
479 REM CLR-  2*CRD
480 PRINT"■■■     POSITIONS SO FAR:-"
489 REM   2*CRD
490 PRINT"■■   1. FRANZ KLAMMER (AUS) - 4:"RIGHT$(TN$,2)
499 REM CRD
500 PRINT"■   2. STEVE PODBORSKI (CAN) - 4:"RIGHT$(STR$(TN+2),2)
509 REM CRD
510 PRINT"■   3. SURGEI COM       (USR) - 4:"RIGHT$(STR$(TN+3),2)
519 REM   6*CRD
520 INPUT"■■■■■■■  YOUR NAME PLEASE";N$
529 REM CLR
530 PRINT"■":POKE53280,3:POKE53281,1
1000 FORN=1054TO2014STEP40:POKEN,102:POKEN+54272,6:NEXT
1010 POKEV,100:POKEV+1,50
1019 REM HOM-BLU-  8*CRD-  4*CRR
1020 PRINT"■■■■■■■■■■■■■■■■■"N$" (GBR)"
1029 REM HOM-  3*CRD- 33*CRR   2*CRD-  4*CRL
1030 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■TIME■■■■■"MID$(TI$,3,2)":";
1040 PRINTRIGHT$(TI$,2);
1049 REM   2*CRD-  6*CRL
1050 PRINT"■■■■■■■■BEST";
1054 REM CRD-  5*CRL
1055 PRINT"■■■■■■TIMES:-";
1059 REM   2*CRD-  6*CRL
1060 PRINT"■■■■■■■■1. 4:"RIGHT$(TN$,2);
1069 REM CRD-  7*CRL
1070 PRINT"■■■■■■■■2. 4:"RIGHT$(STR$(TN+2),2);
1079 REM CRD-  7*CRL
1080 PRINT"■■■■■■■■3. 4:"RIGHT$(STR$(TN+3),2);
1089 REM   3*CRD-  7*CRL
1090 PRINT"■■■■■■■■■VISION";
2000 X=100:Y=200:F=0:PN=1
```

How it works

10-110 sprite data
120 read post date
160-190 initialise sprites
210-450 title screens
460-470 calculation of time necessary to win
480-520 more introduction
530-2510 set up screen and sound effects
3000-3090 main loop
4000-4280 disqualified
5000-5220 finished course
7000-7040 data statements for x co-ordinates of left post, read by line 120
8000-8070 vision display

Hints: Do use the vision display: it is much easier. If you find the game simple or impossible, adjust the x decrement/increment in lines 3005 and 3010, the higher the number, the faster the skier moves. Also the Y decrement in line 3060 could be adjusted to change the speed of the posts in the same way.
Good luck, and do it for Britain!

```
2020 POKE54296,15:POKE54277,190:POKE54278,190:POKE54276,17
2030 POKE54272,50:POKE54273,50:FORN=1TO250:NEXT:POKE54273,0:POKE54272,0
2040 FORN=1TO250:NEXT:T=T+1:IFT<5THENGOTO2030
2050 POKE54272,75:POKE54273,75:FORN=1TO250:NEXT:POKE54276,0:POKE54277,0
2059 REM HOM-   8*CRD
2060 PRINT"                                                    ":TI$="000000"
2500 POKE54296,4:POKE54276,129:POKE54277,255:POKE54278,255
2510 POKE54272,100:POKE54273,255
3000 P=PEEK(56320)
3005  IFP=123THENX=X-6:POKE2040,253:GOTO3025
3010  IFP=119THENX=X+6:POKE2040,254:GOTO3025
3020 POKE2040,252
3025 POKEV,X
3025 REM HOM-   3*CRD- 33*CRR    2*CRD-   4*CRL
3026 PRINT"                                                TIME  "MID$(TI$,3,2)":";
3027 PRINTRIGHT$(TI$,2);
3030  IFF=1THEN3060
3035  IFPN=101THEN5000
3040 PO=PO(PN)
3045  IFPN>94THENFORC=1TO6:R$(C)="          ":NEXT:GOTO3048
3046 FORC=1TO6:R%(C)=PO(PN+C)/130*8:NEXT
3047 FORC=1TO6:ONR%(C)GOSUB8000,8010,8020,8030,8040,8050,8060,8070:NEXT
3047 REM HOM- 17*CRD-   8*CRL CRD-   8*CRL
3048 PRINT"                                  ";:FORC=1TO6:PRINTR$(C);"          ";:NEXT
3050 POKEV+2,PO:POKEV+4,PO+60:F=1:Y=200:X1=PO:X2=PO+60:PN=PN+1
3060 Y=Y-10:POKEV+3,Y:POKEV+5,Y
3070  IFY<10THENF=0
3080  IFY>55ORY<45THEN3000
3090  IFX>X1ANDX<X2THEN3000
4000 POKE54296,15:POKE54277,190:POKE54276,33:POKE54273,10:POKE54272,5
4010 FORN=1TO30:POKE53280,2:POKE53281,2:FORT=1TO5:NEXT:POKE53280,1:POKE53281,1
4020 FORT=1TO5:NEXT:NEXT
4029 REM CLR
4030 POKEV+21,0:PRINT"  "
4040 A$="DISQUALIFIED"
4049 REM HOM-   9*CRD- 42*CRR
4050 L$="                                                                                "
4060 FORN=12TO24:PRINTLEFT$(L$,N+(N-12)*2);MID$(A$,N-11,1)
4070 FORT=1TO100:NEXT:NEXT
4080 POKE54296,0:POKE54276,0:POKE54277,0
4090 FORN=1TO1000:NEXT
4099 REM CLR-WHT
4100 PRINT"  ":POKE53280,2:POKE53281,8
4199 REM    2*CRD-   4*CRR
4200 PRINT"      FINAL POSITIONS:-"
4209 REM    2*CRD
4210 PRINT"   1. FRANZ KLAMMER (AUS) - 4:"RIGHT$(TN$,2)
4219 REM CRD
4220 PRINT"  2. STEVE PODBORSKI (CAN) - 4:"RIGHT$(STR$(TN+2),2)
4229 REM CRD
4230 PRINT"  3. SURGEI COM        (URS) - 4:"RIGHT$(STR$(TN+3),2)
4239 REM    4*CRD-   3*CRR
4240 PRINT"      DISQUALIFICATIONS:-"
4249 REM    2*CRD-CRR
4250 PRINT"   "N$" (GBR) - MISSING POST"
4259 REM    2*CRD
4260 PRINT"       PRESS A KEY TO TRY AGAIN"
4270 GETA$:IFA$=""THEN4270
4275 FORN=VTOV+6:POKEN,0:NEXT
4280 RUN
4999 REM CLR
```

```
5000 PRINT"■":POKE53280,0:POKE53281,0:POKEV+21,0:T$=TI$:POKE54296,0
5009 REM HOM- 24*CRD
5010 L$="■■■
```

Short cuts to character creation

Speed up the creation of Spectrum characters with this utility program by Tony Houlton

Most home computer programmers find that at some stage there is a need to use larger graphics characters built up from a number of individual user defined graphic characters. We may also need to use the same large character, but facing in a different direction. This program will considerably reduce the time and effort needed in calculating the required POKE values.

To illustrate the use of the program we will go through the steps needed to create a 2 x 2 character representing a small aeroplane which can be displayed on the screen facing in four different directions. This involves calculating the DATA for 16 user defined characters; a total of 128 POKE values. Using the program we only need to define two characters with a total of 16 POKE values.

The computer will calculate the rest.

In Fig. 1 you will see half the outline of the aeroplane and the DATA values which must be calculated to generate these characters. These values have been included in the program as lines 9000 and 9010. Also by entering GOTO 8970 in the direct addressing mode, these two characters will be POKEd into the UDG areas 'A' and 'B'.

Since the full character is symmetrical about its longitudinal axis, a reflection in the vertical plane (i.e. the right hand edge of each character) will produce the two characters needed to complete the character. To do this RUN the program and select option 1 from the menu.

When asked for the line number, enter 9000. The old values (i.e. line 9000) will be displayed together with the new DATA values. You will now be asked to choose which graphics character you would like the values POKEd into. Press 'C' and then take the STOP option when it is offered. Using the DATA still displayed on the screen, enter into the program 9020 DATA .. (the values shown without the final comma). Repeat the process again, but this time using initial line number 9010, character 'D' and program data line 9030.

You have now added two lines of data and should have four characters which can be combined to give the shape shown in Fig. 2.

The procedure is the same for menu options 2 and 3, while option 4 allows you to escape from the program.

To invert the aeroplane RUN, choose option 2, repeat procedure four times using lines 9000, 9010, 9020, and 9030 as initial lines; characters 'E', 'F', 'G' and 'H'; and storing the data in program lines 9040, 9050, 9060 and 9070. The four latest characters can now be combined to produce an aeroplane pointing down the screen.

Finally by RUNning, choosing option 3, using lines 9000 to 9070 as initial lines, POKEing characters 'I' to 'P' and storing the data in program lines 9080 to 9150, you will have the remaining eight characters needed to display the aeroplane facing left and right.

The whole process takes much longer to describe than to perform and half an hour's practice and experimentation should put you in command of a most useful programming aid.

The line numbering has been chosen to occupy an area which will not often be used when writing your own programs. This means that the program can be loaded before you start to write. You should replace lines 9000 and 9010 with your own data.

If you don't want to delete the program when you have written your own program it is advisable to include a line such as __6999 STOP or 6999 GOTO (the last line number of your program).

An option to record the old and new DATA by means of a printer is also included.

The program can also be used to transform nonsymmetric characters, but you may have to combine a number of reflections and rotations (holding the DATA in intermediate line numbers) before the desired orientation is obtained.

Variables

A number of DATA line from which values of bytes are to be read

F array to hold new DATA values

M array to hold old DATA values

B,C,D,E, transient variables used to hold values during calculations and whose values may change during a calculation

G value of first address in memory of current UDG character

H variable having a value between 0 and 20 used as a pointer to the chosen UDG character. Value is obtained from ASCII number of letter chosen

I,J,K,L counters used in FOR... TO...NEXT loops

Conversion to other micros

Line **7060** and similar lines set up a perpetual loop until a key is pressed. **RESTORE A** determines the line from which subsequent data will start to be READ. **CODEs** are normal ASCII codes. Address **65368** is the first address of the area in which UDGs are stored on the Spectrum. Characters are stored in groups of eight bytes, each group being lettered sequentially from 'A' to 'U'. Spectrum arrays start at 1 rather than 0, as is the case on some micros.

PROGRAM

How it works

7000-7110 menu display and option selection

7120-7220 vertical reflection routine. Each pixel in each row is read, if used, an appropriate value is added to the row total and the final value stored

7230-7240 prints old and new DATA values to screen

7250-7330 offers UDG character choice and POKEs values into chosen area of memory

7340-7400 offers printer, STOP and return to menu options (note that lines 7230 to 7400 serve all the menu options)

7410-7450 horizontal reflection or inversion routine. The values for each row of pixels are re-ordered. Value 1 becomes value 8, value 2 becomes value 7, and so on.

7460-7590 rotation through 90 degrees routine. The first pixel in each row is read; if used an appropriate value is added to the variable C; the final value of C then becomes the value of row 1. The process is repeated for the second pixel in each row to obtain a value for row 2 and so on till all eight values have been found

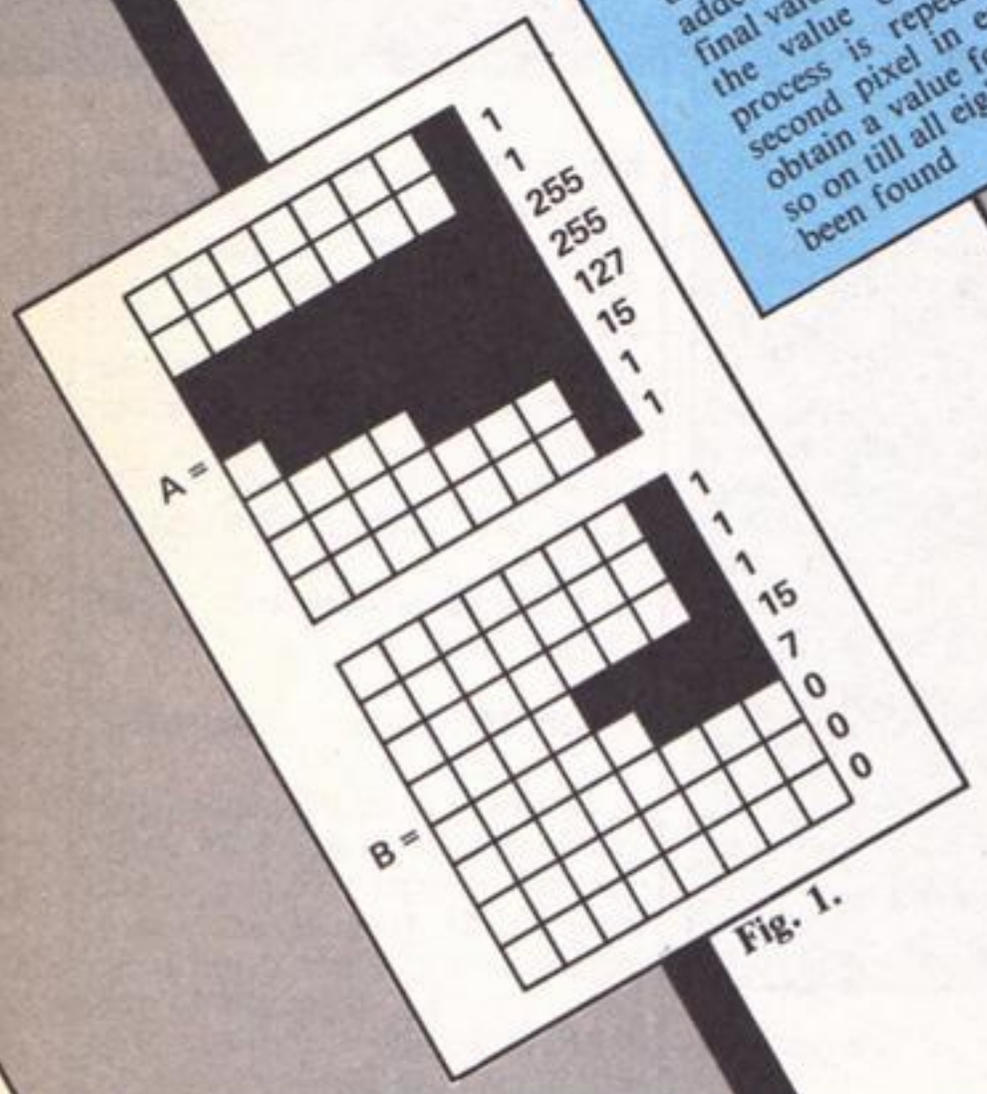
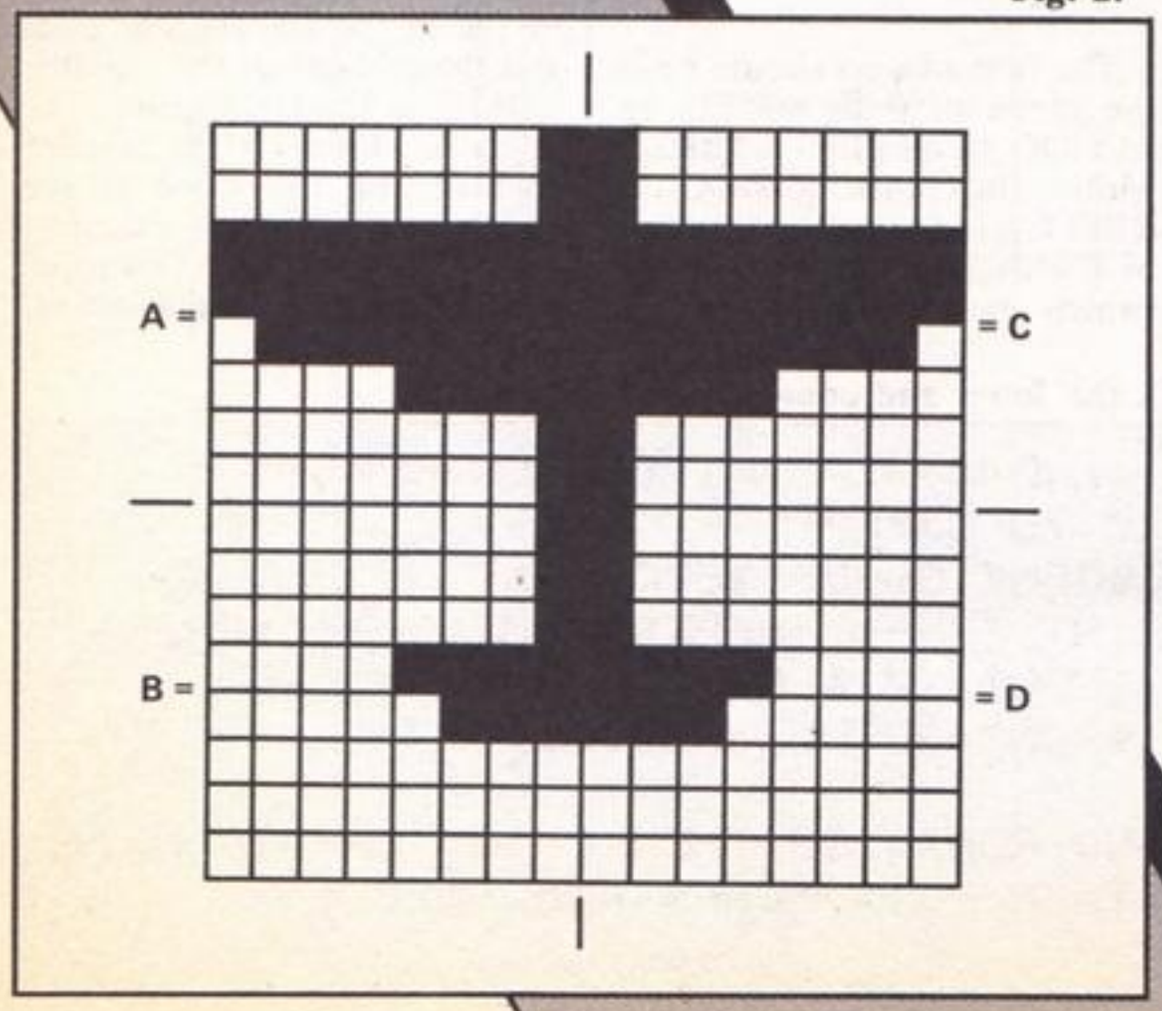


Fig. 1.

Fig. 2.




```
7000 REM GRAPHIC CHARACTER                    TRANSFORM
ATION                    ON THE SPECTRUM
     BY R.A.HOULTON                        NOVEMBER 1984
7010 CLS : PRINT "    WHICH TRANSFORMATION DO YOU
REQUIRE? (PRESS THE APPROPRIATE NUMBER KEY)"
7020 PRINT : PRINT "1. REFLECTION IN THE VERTICAL
     PLANE."
7030 PRINT : PRINT "2. REFLECTION IN THE HORIZONTA
L    PLANE."
7040 PRINT : PRINT "3. ROTATION THROUGH 90 DEGREES
     CLOCKWISE."
7050 PRINT : PRINT "4. ESCAPE FROM PROGRAMME."
7060 IF INKEY$="" THEN  GO TO 7060
7070 IF INKEY$="1" THEN  GO TO 7120
7080 IF INKEY$="2" THEN  GO TO 7410
7090 IF INKEY$="3" THEN  GO TO 7460
7100 IF INKEY$="4" THEN  STOP
7110 GO TO 7060
7120 REM VERTICAL REFLECTION                  LEFT T
O RIGHT
7130 INPUT "ENTER LINE NUMBER OF DATA TO BE TRANSF
ORMED ";A
7140 RESTORE A: CLS : DIM F(8): DIM M(8)
7150 FOR J=1 TO 8
7160 READ B: LET M(J)=B: LET C=128: LET D=1: LET E
=0
7170 FOR K=1 TO 8
7180 IF B>=C THEN  LET B=B-C: LET E=E+D
7190 LET C=C/2: LET D=D*2
7200 NEXT K
7210 LET F(J)=E
7220 NEXT J
7230 PRINT "OLD DATA ";: FOR L=1 TO 8: PRINT M(L);
",";: NEXT L
7240 PRINT : PRINT : PRINT "NEW DATA ";: FOR L=1 T
O 8: PRINT F(L);",";: NEXT L
7250 PRINT AT 15,0;"INTO WHICH USER DEFINED GRAPHI
C CHARACTER DO YOU WANT TO POKE   THESE NEW VALUES
?(PRESS A LETTERBETWEEN ""A"" AND ""U"")"
7260 IF INKEY$="" THEN  GO TO 7260
7270 IF CODE INKEY$<65 OR CODE INKEY$>85 AND CODE
INKEY$<97 OR CODE INKEY$>117 THEN  GO TO 7260
7280 IF CODE INKEY$>64 AND CODE INKEY$<86 THEN  LE
T H=CODE INKEY$-65
7290 IF CODE INKEY$>96 AND CODE INKEY$<118 THEN  L
ET H=CODE INKEY$-97
7300 LET G=65368+(H*8)
7310 FOR J=1 TO 8
7320 POKE G,F(J): LET G=G+1
7330 NEXT J
7340 PRINT AT 19,0;"TO COPY TO PRINTER PRESS ""P""
 TO STOP PRESS ""S"" ANY OTHER KEY TO RETURN TO ME
NU."
7350 IF INKEY$="" THEN  GO TO 7350
7360 IF INKEY$="P" OR INKEY$="p" THEN  GO TO 7390
7370 IF INKEY$="S" OR INKEY$="s" THEN  STOP
7380 GO TO 7010
7390 LPRINT "OLD DATA ";: FOR L=1 TO 8: LPRINT M(L
);",";: NEXT L
7400 LPRINT : LPRINT : LPRINT "NEW DATA ";: FOR L=
1 TO 8: LPRINT F(L);",";: NEXT L: LPRINT : GO TO 7
340
7410 REM HORIZONTAL REFLECTION
7420 CLS : INPUT "ENTER LINE NUMBER OF DATA TO BE
TRANSFORMED ";A
7430 RESTORE A: DIM F(8): DIM M(8)
7440 FOR I=1 TO 8: READ B: LET M(I)=B: LET F(9-I)=
B: NEXT I
7450 GO TO 7230
7460 REM 90 DEGREES CLOCKWISE                 ROTATION
7470 CLS : INPUT "ENTER LINE NUMBER OF DATA TO BE
TRANSFORMED ";A
7480 RESTORE A: DIM B(8): DIM F(8): DIM M(8)
7490 FOR I=1 TO 8: READ D: LET B(I)=D: LET M(I)=D:
 NEXT I
7500 LET E=128
7510 FOR I=1 TO 8
7520 LET C=0: LET G=1
7530 FOR J=1 TO 8
7540 IF B(J)>=E THEN  LET C=C+G: LET B(J)=B(J)-E
7550 LET G=G*2
7560 NEXT J
7570 LET F(I)=C: LET E=E/2
7580 NEXT I
7590 GO TO 7230
8970 FOR I=USR "A" TO USR "A"+15
8980 READ B: POKE I,B
8990 NEXT I
9000 DATA 1,1,255,255,127,15,1,1
9010 DATA 1,1,1,15,7,0,0,0
```

PEEKing the Amstrad's ROM

Part five of our in-depth Amstrad programming series by David Ellis shows you how a value can be returned to BASIC from a machine code routine

In my previous article I discussed how parameters could be passed via the new words, to the corresponding machine code routine. In this article we will see how a value can also be returned to BASIC from a machine code routine.

You may have found it isn't possible to take a PEEK at the ROM on the Amstrad. Figure 1 shows why.

The RAM uses up 64K of memory from Ø to &FFFF but the ROM also uses the same addresses as the RAM — from Ø to &3FFF (16K) and &COOO to &FFF (16K). The 32K of ROM therefore 'overlaps' the RAM at the two positions shown. If you take a PEEK at any address, then it is the contents of the RAM which are returned.

The lower ROM contains the firmware routines, whilst the upper ROM contains the BASIC. Up to 252 expansion ROMs can replace the BASIC ROM if needed by means of bank switching. You could therefore have a FORTH ROM, a Pascal ROM etc and switch between these and other upper ROMs as required.

Although the 32K of ROM is physically contained in one ROM, it is treated as though it is two separate ROMs. In normal use, the operating system switches between the lower and upper ROMs as required and this is quite invisible to the user. This is accomplished by providing routines to enable (turn on) and disable (turn off) the upper and lower ROMs separately. These routines are available from a jumpblock as follows:

1 &B900 Enable the upper ROM
2 &B903 Disable the upper ROM
3 &B906 Enable the lower ROM
4 &B909 Disable the lower ROM

Taking a PEEK at the ROM is therefore a simple case of enabling the ROM in question, returning the value of the required address, and then disabling the ROM before returning to BASIC.

We will do this by creating two new words — LROM and UROM. Two parameters will need to be passed with these words:

1 The address to 'PEEK' at
2 The address of the variable ROM%

The first address should be in the range of Ø to &3FFF, or &COOO to &FFFF. Addresses within the range &4OOO to &BFFF will return the contents of RAM. The variable ROM% (which must be an integer — hence the %) will be declared first so that an address will exist for it. If this is not done, then an error message will be returned.

Reading an address for the lower ROM will then take the form:

```
| LROM , address ,@ROM%
```

and similarly for the upper ROM it will be:

```
| UROM , address ,@ROM%
```

Listings 1 and 2 show the machine code routines for these two new words. We first make sure that there are two parameters available, and if so then a CALL is made to the PARAMETER routine. This will place the address we wish to PEEK in the DE register pair, and the address of the variable ROM% in the HL register. The upper or lower ROM is then enabled and the value of the address we require is placed in the variable ROM%. The upper or lower ROM is then disabled,

Listings 1 and 2

Machine code routine to PEEK the lower ROM (LROM)

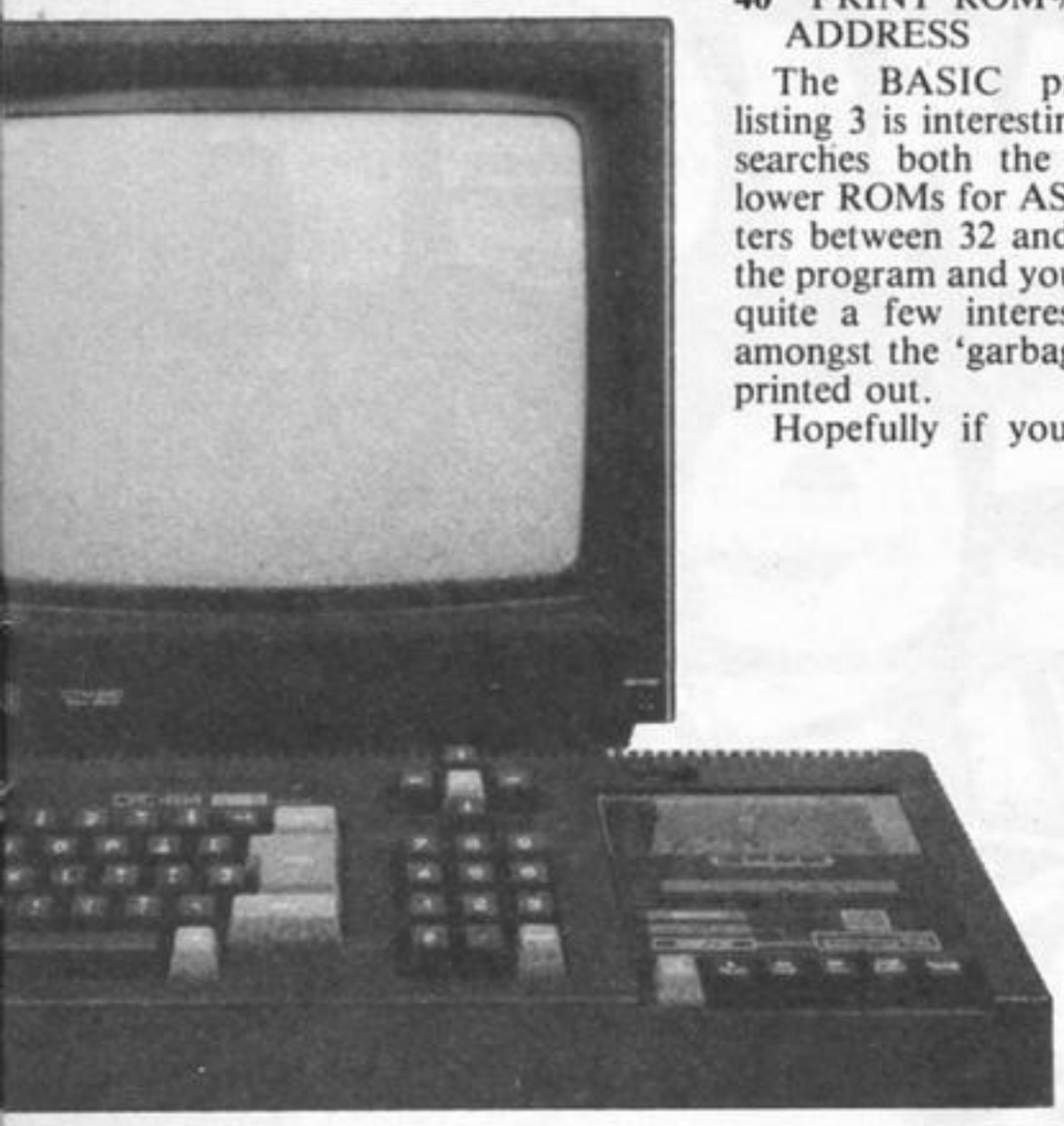
```
Address  Mnemonic      Op Codes    Comment
&82D2    CP 2          FE 2        ; are there two parameters?
&82D4    RET NZ        CØ          ; return if not
&82D5    CALL &8295    CD 95 82    ; parameter 1 (address) to DE register
                                   ; parameter 2 (ROM% address) to HL
&82D8    CALL &B06     CD 6 B9     ; enable the LOWER ROM
&82DB    LD A,(DE)     1A          : load accumulator with the contents of
                                   ; the address pointed to by DE
&82DC    LD (HL),A     77          ; store the contents of the accumulator
                                   ; to address pointed to by HL. i.e. to
                                   ; the variable ROM%
&82DD    CALL &B909    CD 9 B9     ; disable the LOWER ROM
&82EO    RET           C9          ; return from subroutine
```

Machine code routine to PEEK the upper ROM (UROM)

```
&82E1    CP 2          FE 2        ; comments as for LROM except that
&82E3    RET NZ        CØ          ; the UPPER ROM is enabled/disabled
&82E4    CALL &8295    CD 95 82    ;
&82E7    CALL &B900    CD Ø B9     ; enable UPPER RAM
&82EA    LD-A,(DE)     1A          ;
&82EB    LD (HL),A     77          ;
&82EC    CALL &B903    CD 3 B9     ; disable the UPPER ROM
&82EF    RET           C9          ;
```

Listing 3 Basic program to PEEK the lower and upper ROM

```
10 MODE 2:DEFINT a:ROM%=0:PRINT "LOWER ROM"
20 FOR address = 0 TO &3FFF
30 |LROM,address,@ROM%:GOSUB 1000:NEXT
60 PRINT:PRINT:PRINT "-----  UPPER ROM  -----":PRINT
70 FOR address = &C000 TO &FFFF
80 |UROM,address,@ROM%:GOSUB 1000:NEXT
999 END
1000 IF ROM%>31 AND ROM%<128 THEN PRINT CHR$(ROM%);
1010 IF ROM%>160 THEN PRINT CHR$(ROM%-128);
1020 RETURN
```



and we return to BASIC. The ROM value is returned by printing ROM%.

For example, to take a look at the first 100 bytes of the lower ROM the following program could be used:

```
10 ROM% = Ø : 'create the
   variable ROM% first
20 FOR ADDRESS = Ø TO 99
30    | LROM,ADDRESS,@
   ROM%
40 PRINT ROM% ;: NEXT
   ADDRESS
```

The BASIC program in listing 3 is interesting in that it searches both the upper and lower ROMs for ASCII characters between 32 and 127. RUN the program and you should see quite a few interesting words amongst the 'garbage' which is printed out.

Hopefully if you add these two new words to the ones alrady created (see previous articles if in doubt!) you will be able to disassemble some of the routines in both the upper and lower ROMs. Let HCW know if you find any useful ones as we may be able to put these to good use.

Next week we will continue with some more new words including UROLL, DROLL, MOVE and ZERO.

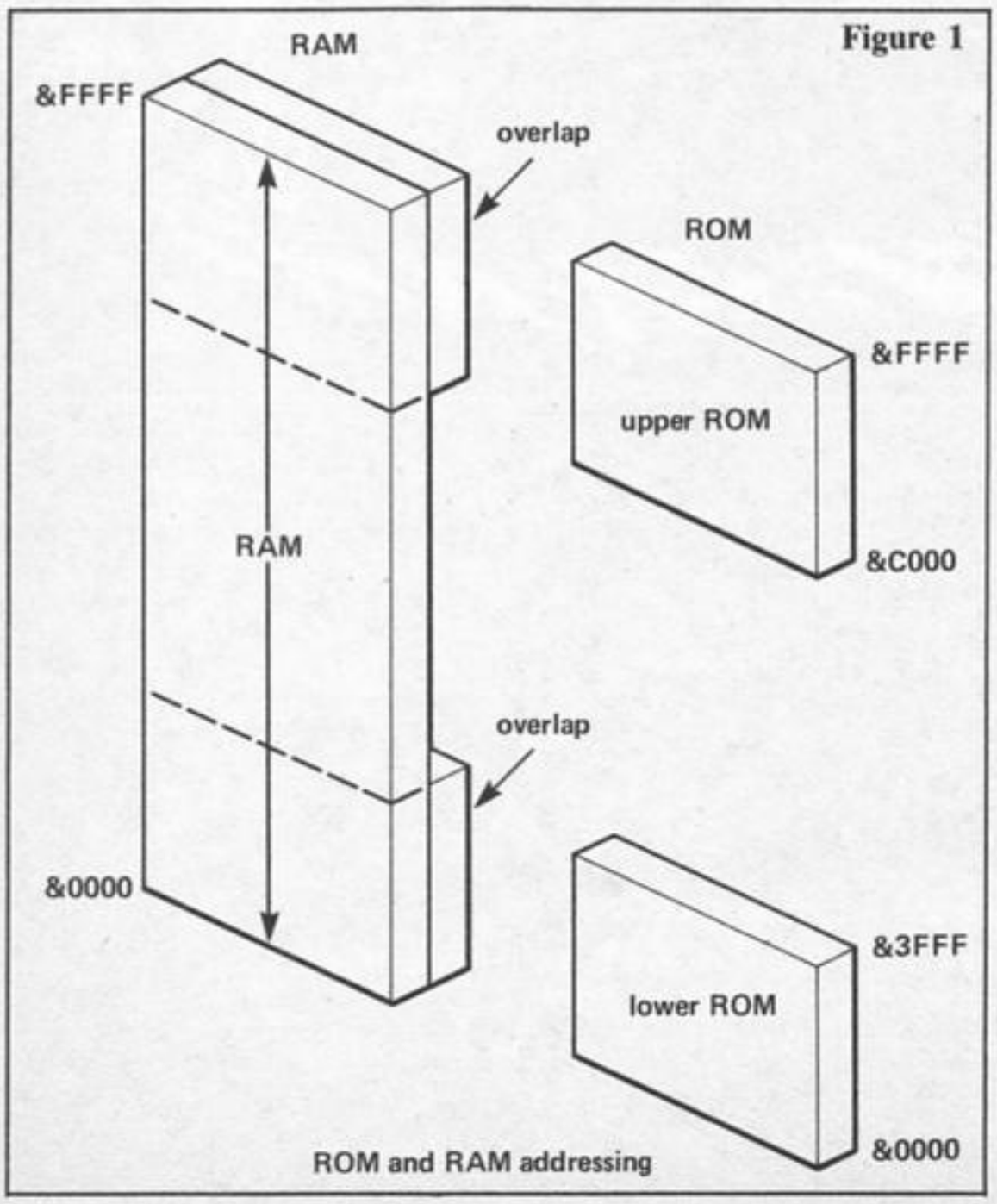


Figure 1

ROM and RAM addressing

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Power racer

Alan Brack's game for the unexpanded VIC-20 has you taking on all comers in a fast-moving car race. Get set, and we're off!

Power Racer 5000 is the name of the black car. You must manoeuvre it past the other racers without crashing.

Use all your skill and keep moving. If you stop for more than three seconds you'll be disqualified.

Whenever 10 laps are completed, you will be able to enter your car in a more difficult race. You have three lives and you score as many points as you can.

This game loads in two parts. Listing one contains instructions and graphics data, while listing two is the main program.

Use key **Z** to move forward, **M** for down and **K** for up.

This program uses all the unexpanded VIC's memory, so take care not to leave unnecessary spaces when typing.

How it works

45-84 sets up main screen
100-200 main program loop
600-620 crash routine
800-850 end of game routine
900-920 disqualified routine

Variables

R,R1 position of your car
X,Y moves all cars
V volume
S,S1,S2,S3 sound
LP lap
SC points
RC race level
C colour
0 to **09** other cars

Listing 1

```
10 REM***POWER RACER***
15 REM***BY ALAN BRACK***
20 POKE52,28:POKE56,28
21 FORI=7424TO7431:POKEI,0:NEXTI
22 FORI=7168TO7303:READA:POKEI,A:NEXTI
25 DATA0,0,1,2,124,255,255,56,0,0,240,8,6,255,254,28
26 DATA128,128,186,170,186,162,128,255
27 DATA255,255,24,24,24,24,24,24
28 DATA0,0,1,2,124,255,255,56,0,0,240,72,70,255,254,28
29 DATA0,0,0,128,6,255,254,28,0,32,17,10,4,255,255,56
30 DATA255,255,0,255,255,0,255,255
31 DATA2,2,4,7,4,4,4,6,2,66,65,135,129,129,129,195
32 DATA0,240,152,244,244,252,96,96,128,128,181,165,181,167,128,255
33 DATA1,1,105,105,73,109,1,255,1,1,237,73,69,77,1,255
34 DATA128,128,142,138,138,142,128,255,1,1,161,161,161,177,1,255
40 PRINT"■":POKE36879,28
45 PRINT"■***POWER RACER 5000***"
```

```
46 PRINT"■THE BLACK CAR IS THE  POWER RACER 5000....."
47 PRINT"■■TO STAY IN THE RACE   STEER THE 5000 PAST   THE OTHERS....."
48 PRINT"■■USE YOUR SKILL TO KEEPTHE CAR MOVING.....   IF YOU STOP FOR MORE  THA
N 3";
49 PRINT" SECS YOU'LL BE DISQUALIFIED....."
50 PRINT"■■COMPLETE 10 LAPS AND  YOU WILL BE ENTERED INA MORE DIFFICULT RACE....
."
51 PRINT"■■HIT SPACE TO CONTINUE
55 POKE198,0
56 GETA$:IFA$<>" "THEN56
60 PRINT"■■■***POWER RACER 5000***"
61 PRINT"■■TRY TO SCORE AS MANY  POINTS AS YOU CAN BY  COMPLETING EACH 10 LAPRAC
E....."
62 PRINT"■■YOU HAVE 3 LIVES....."
64 PRINT"■■■USE KEYS K,M & Z"
65 PRINT"■■■PRESS SHIFT & RUN/STOP TO LOAD MAIN PROG..."
70 NEW
```

Listing 2

```
 45 POKE36869,255
 47 SC=0:RC=1:CR=0
 48 LP=0:LC=0
 50 PRINT"■":POKE36879,250:C=30720:R=8029:R1=8030:X=0:Y=0:N=0:LC=0
 51 O=8074:O1=8075:O2=8088:O3=8089:O4=8016:O5=8017:O6=8124:O7=8125
 52 O8=7990:O9=7991:V=36878:S=36875:S1=36874:S2=36876:S3=36877
 56 FORB1=7944TO7965:POKEB1,3:POKEB1+C,0:NEXTB1
 57 FORB2=8164TO8185:POKEB2,3:POKEB2+C,0:NEXTB2
 65 FORB4=7812TO7833:POKEB4,8:POKEB4+C,7:NEXTB4
 66 FORB5=7834TO7900STEP22:POKEB5,8:POKEB5+C,7:NEXTB5
 67 FORB6=7841TO7907STEP22:POKEB6,8:POKEB6+C,7:NEXTB6
 68 FORB7=7855TO7921STEP22:POKEB7,8:POKEB7+C,7:NEXTB7
 69 FORB8=7848TO7914STEP22:POKEB8,8:POKEB8+C,7:NEXTB8
 73 POKE7844,2:POKE7845,14:POKE7844+C,4:POKE7845+C,4
 74 POKE7837,15:POKE7838,16:POKE7837+C,4:POKE7838+C,4
 75 POKE7903,7:POKE7904,1:POKE7903+C,3:POKE7904+C,3:POKE7902,9:POKE7902+C,7
 76 POKE7912,4:POKE7913,6:POKE7912+C,5:POKE7913+C,5:POKE7910,10:POKE7910+C,7
 77 POKE7919,11:POKE7920,11:POKE7919+C,7:POKE7920+C,5
 78 POKE7851,12:POKE7851+C,4:POKE7852,13:POKE7852+C,4:POKE7918,9:POKE7918+C,7
 79 POKE7916,7:POKE7917,5:POKE7916+C,7:POKE7917+C,7
 80 U=INT(RND(1)*5)+1:POKE7967+U,7:POKE7968+U,5:POKE7967+U+C,4:POKE7968+U+C,4
 81 POKE7796,231:POKE7796+C,3:POKE7774,231:POKE7774+C,3:POKE7753,230
 82 POKE7752,231:POKE7752+C,3:POKE7753+C,7
 83 POKE7803,231:POKE7803+C,3:POKE7781,231:POKE7781+C,3:POKE7759,231:POKE7759+C,3
 84 POKE7760,230:POKE7760+C,7
100 H=PEEK(197):POKEV,15:POKES,196:POKES2,143
105  IFH=36THENGOSUB300:X=X+21:POKES,0:POKES1,245:POKES3,242
110  IFH=44THENGOSUB300:X=X-23:POKES,0:POKES1,245:POKES3,242
115  IFH=33THENGOSUB300:X=X-2:POKES3,0:POKES1,0
118  IFPEEK(R1+X)=4ORPEEK(R1+X)=7THEN600
119  IFPEEK(R+X)=4ORPEEK(R+X)=5ORPEEK(R+X)=6ORPEEK(R+X)=7THEN600
120 POKEO+Y,32:POKEO1+Y,32:POKEO2+Y,32:POKEO3+Y,32
121 POKEO8+Y,32:POKEO9+Y,32
122 POKEO6+Y,32:POKEO7+Y,32:POKEO4+Y,32:POKEO5+Y,32:Y=Y-1
140  IFPEEK(R+X)=3THEN600
141  IFY=-15THENY=Y+42
142  IFRC=>3ANDN=21THENY=-4:N=0
143  IFRC=>2THENPOKE8056,7:POKE8057,5:POKE8056+C,6:POKE8057+C,6
144 POKEO8+C+Y,2:POKEO9+C+Y,2:POKEO8+Y,4:POKEO9+Y,6
145 POKEO6+C+Y,6:POKEO7+C+Y,6:POKEO6+Y,4:POKEO7+Y,5
146 POKEO4+C+Y,2:POKEO5+C+Y,2:POKEO4+Y,4:POKEO5+Y,5
147 POKEO2+C+Y,6:POKEO3+C+Y,6:POKEO2+Y,4:POKEO3+Y,6
148 POKEO+C+Y,4:POKEO1+C+Y,4:POKEO+Y,4:POKEO1+Y,5
```

UNEXPANDED VIC-20 PROGRAM

```
150 POKER1+C+X,0:POKER+C+X,0:POKER+X,0:POKER1+X,1
155 IFPEEK(0+Y)=1ORPEEK(02+Y)=1ORPEEK(04+Y)=1ORPEEK(06+Y)=1THEN600
156 IFPEEK(08+Y)=1THEN600
157 IFLC=>14THENLC=0:LP=LP+1:SC=SC+100
159 PRINT"■■■■■■■■■■■■■■■■■PTS"SC
160 PRINT"■■■LAP"LP
162 IFLP=10THENRC=RC+1:POKES1,0:POKES3,0:POKES,0:POKES2,199:GOTO48
163 PRINT"■■■■■■■■RACE"RC
165 IFZT=>4THENPOKES2,221
170 IFZT=>8THEN900
200 ZT=ZT+1:GOTO100
300 POKER+X,32:POKER1+X,32:LC=LC+1:N=N+1:ZT=0:RETURN
351 POKE04+Y,32:POKE05+Y,32:Y=Y-1
600 POKES,0:POKES1,0:CR=CR+1:PRINT"■■■■■■■■■■■■■■■■CRASH"
605 POKES3,220:FORL=8TO2STEP-1:POKEV,L:FORL1=1TO60:NEXTL1:NEXTL:POKES3,0:POKES1,
0
610 IFCR=3THEN800
620 POKES2,0:POKES3,0:GOTO48
800 PRINT"■":POKE36879,29:POKE36869,240:POKES,0:POKES1,0:POKES3,0:POKES2,0
810 PRINT"■■■■■■■-WELL DONE-":PRINT"■■■RACE LEVEL="RC:PRINT"■■■POINTS="SC
820 PRINT"■■■■ANOTHER GO?...Y/N"
830 POKE198,0
835 GETA$:IFA$="Y"THENRUN
840 IFA$="N"THENEND
850 GOTO835
900 PRINT"■■■■■■■■■■■■■■■■■■■■■■■DISQUALIFIED!":Z=243:POKES2,0:POKES3,0:POKES1,0
910 POKES,Z
915 IFZ=<50THEN800
920 Z=Z-1:GOTO910
```


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BBC EDUCATIONAL FEATURE

Is there life after the DTI offer?

John Henderson kicks off a new occasional series, looking at the BBC and education

Now that the half-price DTI offer to schools has ended, the question is, where will the interest turn now?

Without a doubt Acorn's share of the market, some 82.5% up to last December with one month of the scheme to go, means a future for the BBC computer for a long time to come. Whatever the developments and expansions of the near future, pressure from schools to make the most of their computers will encourage manufacturers to continue developing new ideas.

Security is an obvious problem. Schools haven't had to actively advertise the presence of micros — the DTI has done that. Time to think of a secure computer trolley, or the display of a suitable message when turning on the computer. There is room for a device on a ROM chip that will display the name and address of the school concerned — but not at today's over-inflated prices. This seems an ideal freebie facility for suppliers to use when tempting schools to buy subsequent machines, although the overall price of the BBC looks set to continue falling if sales are to continue.

The great peripheral race is on — disc drives are an obvious target and the market has become much more competitive over the last year. However, many schools are giving thought to a printer as the number one add-on.

Prepare for a full-scale assault on the ears! Music is the target of the month. The computer is seen as an answer to the non-musical teacher's prayers. The in-built sound facilities on the BBC are very versatile. Add the power of Music System from Island Logic, a real snip at £24.95, and children will become instant composers overnight.

Music System may seem expensive, but it's a real gem of a package. There are five modes of operation. A full Editor allows children to create their own notation and alter it where necessary. Keyboard provides a piano-like keyboard for use, and Synthesiser allows musical shapes to be created and saved.

The Printer option is self-explanatory, and hard copies are becoming increasingly important in the life of school children — someone always demands to see results on paper!

This option is Epson compatible and **it works!** So many programs with printer options fail to consider the setting of printers. The battle between the BBC computer and auto-line feed continues. One innovation is the option of a Linker program. This allows up to 10 music files to be linked together. Children could be telling the truth when they come home and claim to have written a masterpiece.

A suitable collection of sample sounds is also contained in the package, on disc two. This adds to the user-friendly emphasis of this whole package — a must for schools and a real alternative to the perennial recorder and violin.

There has been great interest in the use of word processors to free children from the constraints of writing and allow the creative spirit to take over. The new Wordwise-Plus package will enable schools already familiar with word processing to really go to town. The extra facilities include a sector index to save pieces of text ready for input in a document, a fail-safe reminder of the filenames in use, and a way of removing the markers after use — perhaps the most frustrating aspect of original Wordwise.

Each school obtaining a machine on the DTI scheme also received software from the MEP as a free gift.

Factfile, a simple database program, proved useful for introductory work and many schools will be interested in a new suite of programs under the title Picfile (or Son of Factfile — CUP £15).

This consists of the Factfile program, with suitable amendments and a choice of tape or disc filing systems — someone's thinking of the needs of a busy school. Picfile allows datafiles created on Factfile to be displayed in the form of bar charts or scattergrams, thus extending the flexibility of this program. Also included are three sample datafiles, a Copier option, allowing the transfer of files to and from tape or disc, and a Printer option.

However, the latter falls into the obvious trap and won't work with some popular printers — the line-feed bugs should really be ironed out before these materials are marketed.

Cambridge University Press has started to send out Picfile on a seven-day trial basis. Perhaps it's time to trust schools and bury the piracy argument.

There has been plenty of interest in the full implementations of LOGO available for the BBC, and plenty of criticisms and doubts. The extra facilities available are off-set by the price of these packages, and the time involved in learning how to use them. Many schools are sticking with the less sophisticated versions of LOGO and allowing more children time to develop ideas.

Plans for the computer-age Domesday book are now well under way. School trials are almost complete and material is due in schools this summer.

Meanwhile the PODD craze continues — a sign of the real quality software schools can look forward to in 1985.

Shoot the Rapids
C64
£7.95

New Generation, Bath, BA2 4TD

Have you ever paddled a canoe? Well, the control movement in Shoot the Rapids is fairly true to life. My wrist hurt after half an hour's paddling.

It's this control movement that makes the game stand out. You rock the joystick from side to side like a paddling action. Hold down the fire button and change to backwards paddle. Rock to one side only and paddling one side only turns the canoe. Alternatively you can use the keyboard, and define which keys for left paddle, right paddle and reverse. Actually, I found this easier.

So off you set, being carried downstream by the current, trying to negotiate your way through the slalom gates. Completion with the time limit puts you onto the next river. There are five rivers, with an increasing number of obstacles — rocks, speed boats and beavers, not to mention the river banks. Your objective is to set record times on each course.

It's a good idea, but unfortunately the graphics aren't special and apart from the paddle action, there's nothing to make it outstanding. **B.J.**

instructions	85%
playability	80%
graphics	75%
value for money	70%

★ ★ ★

River Raid
MSX
£11.99

Activision (UK) Inc, 15 Harley Hse, Marylebone Rd, London NW1 5HE

River Raid is a good arcade game with plenty of action and variety. It's not particularly original, but nonetheless well presented.

On screen is a top view of your plane which travels up a scrolling river. You can accelerate or decelerate and move to left or right. The banking move is a nice touch as the wings dip. Joystick or cursor keys are equally responsive and a few minutes handling soon givs a lot of confidence to cope with the hazards.

Thera are ships, balloons, helicopters and land based tanks to stop you. Your objective is to destroy each bridge and go deeper into enemy territory.

When you've loaded the program the options screen allows you to pick your level of difficulty so you need not start at the beginning each time. You can play solo or with another player.

I particularly appreciated the good packaging — sensibly sized, tough vinyl case — with a picture of the screen layout. It saves buying the unexpected.

The only problem is the price. A good game but surely the pricing ought to compare with other versions of the game even though MSX is pretty new? **M.P.**

instructions	100%
playability	95%
graphics	100%
value for money	90%

★ ★ ★ ★

Everlasting arcade

Arcade games are still immensely popular so here's a special treat for arcade addicts

Fast Frog/ Norbert
TI-99/4A
£7

Pewterware, dist by Stainless, 10 Alstone Rd, Stockport

There are two programs on this tape. The first is another version of the old favourite, Frogger. This one is for two players: once one player loses a frog, it is the turn of the other.

There are three levels, and the frogs can move in any of the usual joystick directions. As usual you must guide your frog across a road and over a river. An added incentive to swift decision making is the passage of a street-sweeper. Extra points are awarded if you land in a safe haven with the 'P' logo in it.

The second program is worth just about every other program I have ever seen, put together. The aim is simple: guide Norbert from block to block on a pyramid, changing the colour of each as you go.

You must avoid various monsters, and as each pyramid is completed, so a more difficult one takes it's place. You have three lives, and a running score and high score are displayed. Occasionally poor sprite coincidence detection permits you some leeway, which actually adds to the enjoyment of the game. Excellent!

This needs Extended BASIC. **P.B.**

instructions	85%
playability	95%
graphics	95%
value for money	90%

★ ★ ★ ★ ★

Hubert
BBC B
£5.50

Visions, Strand Hse, Great West Rd, Brentford

No prizes for guessing what this game is about. Call it Hubert or Cubert, it's bounce around the pyramid time again.

This time your man is supposed to be painting the pyramid steps and the standard selection of nasties come bouncing around to splat him. One touch and a step is painted; I wish my home decorating was that easy.

There are eighteen pyramids to paint; then, rather like the Forth Bridge, you go back to the beginning and start again in a never ending frenzy. Mind you, unless you're an expert, you won't get halfway. It's a very harsh version; if you get squashed about to paint the twenty-eighth step, you have to repaint the other twenty-seven all over again.

With new versions of much imitated arcade games I expect a new twist somewhere. But although it has the expected high-score tables, pause, mute and keyboard or joystick options, there's nothing to make this version outstanding.

The cassette insert offers big money for original game ideas and programs. Andrew Derodra, the author of this one, won't be qualifying for any of it., **B.J.**

instructions	75%
playability	80%
graphics	75%
value for money	75%

★ ★

Pitfall II
MSX
£11.99

Activision (UK) Inc, 15 Harley Hse, Marylebone Rd, London NW1 5HE

A superb game which is difficult to fault. Pitfall Harry, a cartoon-like character, moves through various beautifully arranged scenes featuring caverns, balloons and rivers. Your aim is to collect gold, find the Raj diamond, Harry's niece Rhonda and cat Quickclaw.

What usually annoys me about this type of program is the frequency with which you get killed and have to start again. Not here. As you progress you pass red cross stations. When you touch one of the nasties you are sent back to the last cross you passed. This affects your score and at first I was constantly at zero, but this needn't affect your progress. In fact you never die and you could continue scoring nothing.

A nice tune is played changing occasionally to suit the activity — good atmosphere without being annoying.

Movement is with joystick or cursor keys and spacebar which I found better especialy on ladders.

An expensive but impressive game, making full use of colour, sprite graphics and music facilities. Hugely entertaining and relatively low frustration levels without being too easy. **M.P.**

instructions	100%
playability	100%
graphics	100%
value for money	90%

★ ★ ★ ★ ★

you'r 'e for the c hop!

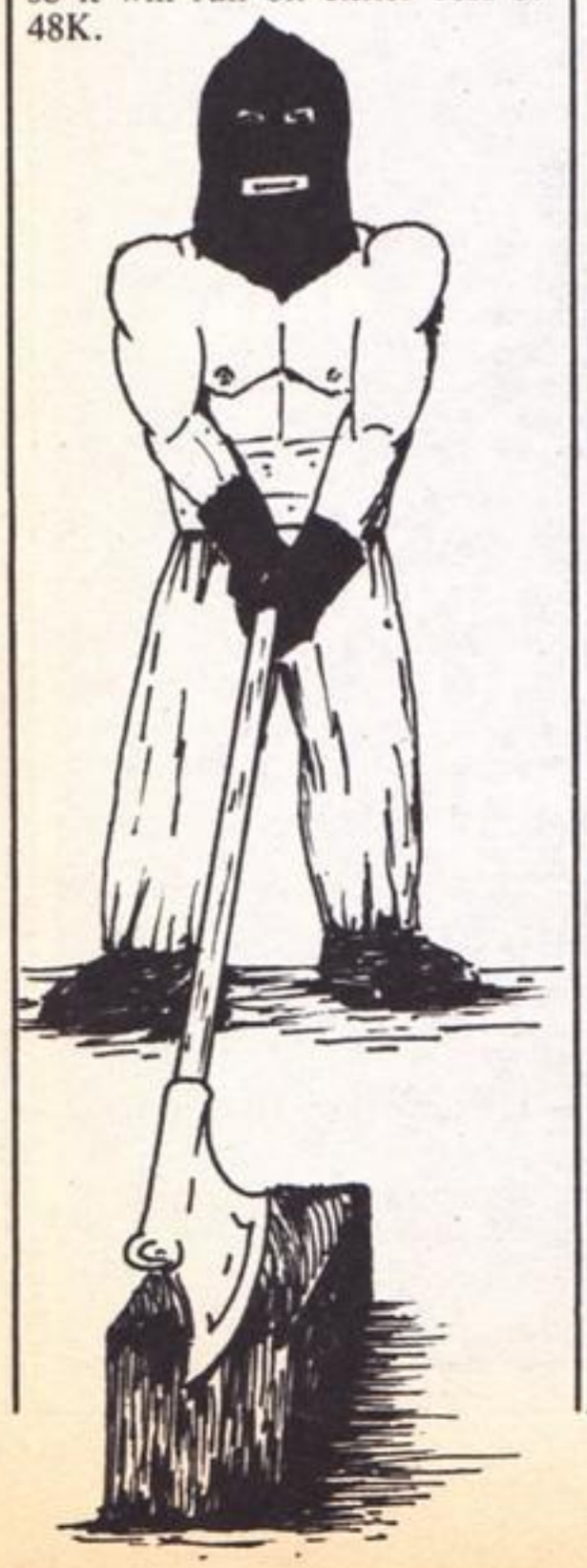
You stand to lose your head if you can't guess the word in Bruce Viney's game for the Spectrum. There's colourful animated graphics of both executioner and crowd

It is the French Revolution, and you have been sentenced to savour the delights of Madame Guillotine.

Your only hope of escape is to guess the mystery word, letter by letter, which appears on the wall of the Bastille.

Be warned — you can only have six wrong guesses — then chop!

Written on a Spectrum 48K, the program uses just over 11K, so it will run on either 16K or 48K.



There are liberal sprinklings of REM statements to help understand how it works.

The store of words at lines 200-230 can be expanded to 100 lines by altering line **115** to: LET x=(RND*100)+1.

The program will only accept lower case letters, apart from the normal break-into routines to sneak a look at the words, or enter new ones, so you must remove CAPS LOCK after loading.

How it works

11-74 set up permanent background
79-89 position of crowd faces
100-195 main loop
200-230 word store
300-330 data for funeral march
400-420 data for national anthem
1000-1030 prints correctly guessed letter
2000-2095 drops blade; prints out mystery word
3000-3150 introduction routine (used only once)
5000-5050 reprints victum; alters crowd faces
6000-6096 lifts blade
7000-7015 skyline data
8000-8160 redraws guillotine; resets crowd faces
9000-9086 UDG data

Variables

d determines position of blade
r points to appropriate routine for each guess
x random number to select word
c$ dummy string to store letters correctly guessed
d$ determines when word is guessed
f$ crowd faces
g$ guillotine blade
n$ letter guessed
q$ background colours
w$ word picked from store

```
   0>REM "CHOP!" by B.Viney 1
984
   1 PRINT AT 11,10;"PLEASE WAIT"
   3 GO SUB 9000: CLS
   5 GO SUB 3000
   8 CLS : PRINT AT 3,13; INK 0;"CHOP!"'"based on
the old game of HANGMAN"'"   where you have to spe
ll the"'"          hidden word."'"In this version,
you are given"'"six wrong guesses, then-"'"
     CHOP!"
  15 PRINT AT 15,0;"If you want to see the list of
"'"hidden words to enter your own,"'"then press ke
y 'W' otherwise"'"press any other key to continue"
: PAUSE 0
  20 IF INKEY$="w" THEN  CLS : PRINT AT 15,0;"TO S
EE THE WORDS IN THIS GAME,"'"BREAK WHILE THE MUSIC
 IS PLAYING"'"AND ENTER ""LIST 200""";AT 21,0;"PRE
SS ANY KEY TO CONTINUE": PAUSE 0
  25 BORDER 2: CLS
  30 POKE 23609,50
  35 LET g$="     "
  40 DIM q$(352)
  45 PRINT  PAPER 5;AT 0,0;q$;AT 11,0; PAPER 4;q$
  50 PLOT 0,140
  55 RESTORE 7000
  60 FOR f=1 TO 37: READ a,b: DRAW a,b: NEXT f
  65 PRINT AT 1,14; INK 1;" "; INK 7;" "; INK 2;
" ";AT 2,14; INK 1;" "; INK 7;" "; INK 2;" "
  70 FOR f=18 TO 21: FOR h=0 TO 31
  72 PRINT  PAPER 3;AT f,h;" ": NEXT h: NEXT f
  74 LET f$=" ": GO SUB 80: GO TO 95
  79 REM crowd faces
  80 RESTORE 84
  81 FOR n=1 TO 25: READ a,b
  82 PRINT  INK 0; PAPER 7;AT a,b;f$
  83 NEXT n
  84 DATA 17,2,17,5,17,9,17,12
  85 DATA 18,1,18,4,18,6,18,8,18,10,18,12,18,15
  86 DATA 19,3,19,7,19,10,19,11,19,14,19,16
  87 DATA 20,1,20,4,20,7,20,11,20,17
  88 DATA 21,5,21,9,21,13
  89 RETURN
  95 GO SUB 8000
 100 REM loop start
 105 LET d=0
 110 RANDOMIZE
 115 LET x=INT (RND*30)+1
 120 RESTORE 200+x
 125 READ w$
 130 PRINT AT 10,1;
 135 FOR y=1 TO LEN w$: PRINT  PAPER 7;"-";: NEXT
y
 140 INPUT "GUESS";n$
 145 IF CODE n$<97 OR CODE n$>122 THEN  GO TO 140
 150 LET r=0: FOR a=1 TO LEN w$
 155 IF w$(a)=n$ THEN  LET r=r+1
 160 NEXT a
 165 IF r=0 THEN  GO TO 6000
 170 LET c$=""
 175 FOR a=1 TO LEN w$
 180 IF w$(a)=n$ THEN  PRINT AT 10,a; PAPER 7;n$:
BEEP .05,10
```

```
185 LET d$=SCREEN$ (10,a): LET c$=c$+d$: NEXT a
190 IF c$=w$ THEN  GO TO 5000
195 GO TO 140
200 REM word store
201 DATA "constabulary"
202 DATA "mirror"
203 DATA "balloon"
204 DATA "computerise"
205 DATA "calculator"
206 DATA "recorded"
207 DATA "newspaper"
208 DATA "newsvendor"
209 DATA "gracefully"
210 DATA "cinema"
211 DATA "tulips"
212 DATA "express"
213 DATA "experts"
214 DATA "hypnotise"
215 DATA "delusion"
216 DATA "illusion"
217 DATA "schoolday"
218 DATA "schoolboy"
219 DATA "pumice"
220 DATA "gratefully"
221 DATA "zylophone"
222 DATA "zither"
223 DATA "zebra"
224 DATA "aquarium"
225 DATA "aquiring"
226 DATA "purpose"
227 DATA "pursued"
228 DATA "justify"
229 DATA "justice"
230 DATA "police"
299 REM funereal march!
300 DATA .6,0,.4,0,.2,0,.6,0,.4,3,.2,2,.4,2,.2,0,
.4,0,.2,-1,.6,0
310 RESTORE 300: FOR n=1 TO 11: READ a,b: BEEP a,
b: NEXT n
320 FOR f=8 TO 10: PRINT  PAPER 5;AT f,1;"
    ": NEXT f
330 RETURN
399 REM national anthem!
400 DATA .15,0,.15,0,.2,3,.2,3,.2,5,.2,5,.3,10,.1
,7,.2,3,.2,3,.2,7,.2,3,.2,0,.3,8,.1,5,.2,2,.2,3
410 RESTORE 400: FOR n=1 TO 17: READ a,b: BEEP a,
b: NEXT n
420 RETURN
999 REM correct letter
1000 FOR a=1 TO LEN w$
1010 IF w$(a)=n$ THEN  PRINT AT 10,a; PAPER 7;n$:
BEEP .05,10
1020 NEXT a
1030 GO TO 140
1999 REM drop blade
2000 FOR n=1 TO 15
2002 PRINT AT n,23;g$;AT n-1,23;"    ": BEEP .005,
21-n
2004 NEXT n
2005 PRINT AT 15,23;"    "
2007 FOR n=-10 TO 10 STEP 5
2008 BEEP .005,n
2009 NEXT n
2010 PRINT AT 18,24; INK 9;"  ";AT 17,24; INK 9;
"  ";AT 16,24; INK 0; PAPER 2;"  ": PAUSE 3
2015 PRINT AT 19,24; INK 9;"  ";AT 18,24; INK 9;
"  ";AT 17,24; INK 0; PAPER 2;"  ": PAUSE 3
2020 PRINT AT 19,24; INK 9;"  ";AT 18,24; INK 0;
"  ": PAUSE 3
2025 PRINT AT 19,24; INK 0;"  "
2040 PRINT AT 12,17; INK 0; PAPER 4;" ";AT 13,17;
" ";AT 13,19;" ";AT 14,17;" ";AT 14,19; PAPER 7;
" ";AT 15,17; PAPER 4;"    ";AT 15,19; OVE 1;
"^"; OVER 0; INK 0;AT 15,21;" ";AT 16,18;"   ";
AT 17,18;"   ";AT 18,18;"   "
2042 INK 0: PAPER 4: PLOT 142,68: DRAW 0,16
2043 OVER 1: PLOT 148,64: DRAW 16,0: OVER 0
2070 LET f$=" "
2075 GO SUB 80
2080 PAPER 7: INK 0: PRINT AT 8,1;"THE WORD WAS-";
AT 9,1;w$
2085 GO SUB 300: GO SUB 8000
2090 LET f$=" ": GO SUB 80
2095 GO TO 105
3000 REM flag
3010 DIM a$(9)
3015 INK 0: PAPER 6: BORDER 0: CLS
3020 FOR x=1 TO 16
3030 PRINT AT x,1; PAPER 5;a$;AT x,10; PAPER 7;a$;
AT x,19; PAPER 2;a$
3040 NEXT x
3043 PLOT 8,40
3044 DRAW 216,0: DRAW 0,128: DRAW -216,0: DRAW 0,-
128
3050 FOR n=1 TO 21
3052 PRINT AT n,28;" ": NEXT n
3055 GO SUB 400
3070 FOR f=2 TO 15
3075 PRINT AT f,12; PAPER 7;"    "
3076 PRINT AT f-1,12; PAPER 7;"     ": BEEP .009,2
1-f
3078 NEXT f
3090 PAPER 8: INK 3
3100 PRINT AT 12,9;"          "
3110 PRINT AT 13,9;"          "
3120 PRINT AT 14,9;"          "
3130 PRINT AT 15,9;"          "
3140 BEEP .05,20: BEEP .05,30: BEEP .05,20
3145 PRINT AT 18,8; INK 2;"B. VINEY, 1984": PAUSE
50
3150 RETURN
4999 REM correct word guessed
5000 PAPER 8: PRINT AT 13,29; INK 0;"  ";AT 14,2
8; INK 3;" "; INK 0;"  "; INK 3;" ";AT 15,28;
INK 3;"    ";AT 16,28; INK 3;"    ";AT 17,28
;"    ";AT 18,28;"    "
5005 PRINT AT 16,24; INK 0; PAPER 4;"  ";AT 17,2
4; INK 0; PAPER 8;"  "
5010 LET f$=" ": GO SUB 80
5015 FOR n=16 TO 11 STEP -1
5017 PRINT  PAPER 8; INK 6;AT n,2;" ";AT n,4;" "
;AT n,6;" ";AT n,8;" ";AT n,10;" "
5019 OVER 1: PRINT  PAPER 8; INK 6;AT n,2;" ";AT
n,4;" ";AT n,6;" ";AT n,8;" ";AT n,10;" "
5021 NEXT n: OVER 0
5023 FOR n=11 TO 16
5025 PRINT  PAPER 8; INK 6;AT n,2;" ";AT n,4;" "
;AT n,6;" ";AT n,8;" ";AT n,10;" "
5027 OVER 1: PRINT  PAPER 8; INK 6;AT n,2;" ";AT
n,4;" ";AT n,6;" ";AT n,8;" ";AT n,10;" "
5029 NEXT n: OVER 0
5040 GO SUB 400: GO SUB 8000
5045 LET f$=" ": GO SUB 80
5050 GO TO 105
5999 REM lift blade
6000 LET d=d+1
6002 PAPER 8: INK 1
6005 LET g$="    "
6006 PAPER 4: INK 0: PRINT AT 13,21;" ";AT 14,21;"
 ";AT 15,21;" "
6007 PLOT 169,52: DRAW 0,20
6008 PAPER 8: INK 1
6010 IF d=1 THEN  GO SUB 6050
6012 IF d=2 THEN  GO SUB 6060
6013 IF d=3 THEN  GO SUB 6070
6014 IF d=4 THEN  GO SUB 6080
6015 IF d=5 THEN  GO SUB 6090
6016 IF d=6 THEN  GO TO 2000
6020 PAPER 4: INK 0: PRINT AT 14,21;" ";AT 15,21;
" "
6025 GO TO 140
6050 FOR n=1413 STEP -1
6052 PRINT AT n,23;g$;AT n+1,23;"    ": BEEP .05,2
1-n
6054 NEXT n
6056 RETURN
6060 FOR n=12 TO 10 STEP -1
6062 PRINT AT n,23;g$;AT n+1,23;"    ": BEEP .05,2
1-n
6064 NEXT n
6066 RETURN
6070 FOR n=9 TO 7 STEP -1
6072 PRINT AT n,23;g$;AT n+1,23;"    ": BEEP .05,2
1-n
6074 NEXT n
6076 RETURN
6080 FOR n=6 TO 4 STEP -1
6082 PRINT AT n,23;g$;AT n+1,23;"    ": BEEP .05,2
1-n
6084 NEXT n
6086 RETURN
6090 FOR n=3 TO 1 STEP -1
6092 PRINT AT n,23;g$;AT n+1,23;"    ": BEEP .05,2
1-n
6094 NEXT n
6096 RETURN
```

```
6999 REM skyline data
7000 DATA 20,0,0,10,-4,0,10,10,10,-10,-4,0,0,-15,1
0,0,0,15,55,0,0,-25,15,0
7005 DATA 0,10,24,0,0,33,-24,0,0,-16,24,0,0,-22,5,
0,0,-30,6,0
7010 DATA 0,10,-4,0,15,15,15,-15,-4,0,0,-10,70,0,0
,30,-4,0,10,15
7015 DATA 10,-15,-4,0,0,-30,0,0,3,0
7999 REM redraw guillotine
8000 INK 0
8001 FOR f=1 TO 10: PRINT  PAPER 5;AT f,23;"    ":
 NEXT f: FOR n=11 TO 15: PRINT  PAPER 4;AT n,23;"
   ": NEXT n
8003 FOR f=13 TO 18: PRINT  PAPER 4;AT f,28;"    "
: NEXT f
8004 FOR f=8 TO 10: PRINT  PAPER 5;AT f,1;"
       ": NEXT f
8015 PRINT  PAPER 5;AT 0,21;"        "
8020 FOR n=1 TO 18: PRINT AT n,22;" ";AT n,27;"
": NEXT n
8025 PAPER 7: PRINT AT 16,23;"    ";AT 17,23;"
    ";AT 18,23;"    "
8030 PRINT AT 19,18;"                "
8034 PAPER 4
8045 FOR f=20 TO 21: PRINT AT f,18;" ";AT f,31;"
 ": NEXT f
8050 FOR n=11 TO 15: PRINT AT n,17;" ": NEXT n
8060 PLOT 169,68: DRAW 0,100
8070 PRINT AT 13,19;"   ";AT 14,19; PAPER 7;" "
;: PLOT 148,64: DRAW 16,0: PRINT AT 14,21; PAPER 4
;" ";AT 15,18;"    "; OVER 1;AT 15,19;"^"; OV
ER 0;AT 16,18;"   ";AT 17,18;"   ";AT 18,18;"
   "
8075 PLOT 169,68: DRAW 0,100
8080 INK 6
8090 PRINT AT 20,24;"  ";AT 21,24;"  "
8095 PRINT  INK 1;AT 15,23;g$
8100 INK 0
8160 RETURN
9000 REM udgs
```

```
9005 RESTORE 9000
9010 FOR f=USR "a" TO USR "s"+7: READ a: POKE f,a:
 NEXT f
9020 DATA 255,15,0,0,0,0,0,0
9021 DATA 255,255,127,7,0,0,0,0
9022 DATA 255,255,255,255,127,7,0,0
9023 DATA 255,255,255,255,255,255,127,7
9060 DATA 255,248,241,198,216,144,166,166
9061 DATA 255,31,207,99,27,9,109,101
9062 DATA 128,129,128,195,196,240,248,255
9063 DATA 1,129,1,195,35,15,31,255
9066 DATA 0,7,15,63,58,96,70,70
9067 DATA 0,224,240,120,28,14,98,98
9068 DATA 64,65,104,39,26,11,4,3
9069 DATA 2,130,22,228,56,144,32,192
9072 DATA 117,221,120,240,224,64,192,64
9074 DATA 123,253,29,7,7,3,1,3
9076 DATA 192,192,192,224,192,232,132,236
9078 DATA 3,3,3,7,11,27,37,55
9080 DATA 102,102,0,24,66,60,60,24
9082 DATA 102,102,0,24,0,60,66,126
9084 DATA 102,102,0,24,0,60,0,0
9086 RETURN
```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Aliard's Tome
C64
£6.99

Romik, 272 Argyll Ave, Slough SL1 4HE

There are so many adventures around these days that new ones need to be at least a little bit above the average to be worth bothering with. Aliard's Tome is worth bothering with.

The basic theme is not exceptional — the usual castle/dungeon/caves to explore — but there are a few nice twists. Instead of having a limit to the number of items you can carry, each item has a weight. The heavier your total load, the faster your health runs out — much more realistic.

There are only 35 rooms and most you can get to easily. But some of the items you find, can't be used for quite a while. That gives you clues about what you need to find first, and the flavour of how the adventure will progress. To me, the essential ingredient many adventures lack is a sense of humour; not so here. Examine the skeleton for example.

This is a purely text based adventure. There are no hi-res pictures to soak up memory without providing extra clues to help you progress. It's not earth shattering, but it's worth the effort. **B.J.**

instructions	90%
playability	80%
graphics	N/A
value for money	75%

★ ★ ★

Tristan and Isolde
C64
£8.95

CRL

There are quite a lot of American games on the market and a few Hungarian ones, but this is the first German game I've seen. It's a graphic adventure, translated into English except the names of the rooms, which are still German. This doesn't detract from the playability of the game, it just looks odd.

The instructions sheet was presumably not the final version, as it was rather crudely duplicated and referred to the characters as Kunibert and Kunigunde rather than Tristan and Isolde. The on-screen instructions were more helpful.

Commands are entered by single-key selections from a menu displayed at the side of the screen, which is very unusual. You have to guide Tristan around a castle in search of Isolde, who will then follow him back to the start. There are a few items to pick up along the way, and some monsters to avoid, of course.

As adventures go, this one is easy. Success seems to require luck rather than skill, there being very few puzzles to solve on the way. **M.N.**

instructions	65%
playability	70%
graphics	85%
value for money	60%

★ ★ ★

David's Midnight Magic
C64
£12.95

Ariolasoft, 72 Westfields Ave, London SW13 0AU

This is a pinball simulation game for one to four players. On loading the game you select the appropriate number of players and away you go. No joystick is required you use the keyboard; the logo key for the left flippers and the shift key for the right.

There are suitable sound effects as the ball whizzes around hitting targets and rebounding off cushions. The table occupies one half of the screen and the score the other half. I didn't find the graphics very clear and prefer other versions of this game.

There are many ways of scoring points and collecting bonuses. If you don't worry about why you have scored but concentrate on belting the ball and stopping it disappearing down the bottom slot you will enjoy this. As you become more skilled you can change the plunger spring tension via the function keys to gain extra control.

At the end there is a high score board. The instructions say this is automatically saved to disc, but I found my disc kept crashing at this stage after a lot of head banging so I have reservations about the quality of the programming.

This needs a disc drive. **L.C.**

instructions	60%
playability	50%
graphics	60%
value for money	50%

★ ★

Weird and wonderful

A pageful of adventures to really get you thinking. See if our reviewers could cope

The Witch's Cauldron
48K Spectrum
£6.95

Mikro-Gen, 44 The Broadway, Bracknell, Bucks

Wicked Witch Hazel has punished you by turning you into a toad, but has allowed you to keep your human mind in order to seek out spells and concoct potions to regain human form.

You are imprisoned in her lair on the island of Molvagn with evil Moctuper to guard you. This adventure has a vocabulary of 300 words and 100 different locations.

After death you can restart without reLOADing; hurray! The redesigned character set is very easy to read and each location is colourfully and clearly illustrated.

Starting on the couch in the Parlour, I managed to collect a sheet of music, gold ring, magic mirror, some soot — which turns you into a bat, eaten by Moctuper — read messages written in the dust and mirror and drink Whiskey. But it was all Irish to me, as I continually ended up in a mousehole — in a mousetrap, unable to answer the mouse's riddle, so he ate me! **T.W.**

instructions	50%
playability	70%
graphics	80%
value for money	70%

★ ★ ★ ★

Cadcam Warrior
C64
£9.95

Tasket, 13 High St, Bridlington YO16 4PR

This should put a stop to the software writers' competition to see who's game has most screens. It's not worth trying to beat 8192.

All the screens are different, but then, like snowflakes, they're basically the same. Each is two sides of a metallic plate, part of the inside of a cryo unit of a CADCAM machine. The sides are connected by holes through which the droid you control nips to dodge fireballs or chase the variety of marauding nasties that he must destroy to reach the next screen.

Although it's basically a shoot-em-up game, there is an adventure element to it. To get to the last screen you either go via the other 8191, or, by mapping the layout, take short cuts.

The game comes complete with a booklet giving a lecture on CADCAM and a preamble to the game scenario, both interesting but superfluous. I'm not a mega-zapper myself, but those of my aquaintance who nip twice round Attack of the Mutant Camels before breakfast were unimpressed. A landmark in screen numbers perhaps, but not one of the greats. **B.J.**

instructions	90%
playability	83%
graphics	80%
value for money	75%

★ ★ ★

commodore special

We've got a light pen and a logic circuit analyser for you this week

Light Pen C64 £28

Stack Computer Services, Freepost, Bootle, Merseyside L20 0AB

The light pen has always been an invaluable aid to computer aided design. It is also of value as an aid in education and for drawing and computer art. Thanks to the 64's hardware, the pen simply plugs into joystick port one and the co-ordinates of a point on the screen is obtained by interrogating two registers.

The pen comes with two cassettes. The first contains 10 games and the second a suite of routines for the creation of high resolution designs.

The pen comes with an excellent handbook which gives detailed information on how the pen operates and how to program it. The pen will operate in two modes of resolution. First it will identify eight by eight blocks of pixels (i.e. normal characters) giving a resolution of 25 rows of 40 characters.

Secondly, it will recognise individual pixels giving a resolution of 320 by 200. The games supplied use the low resolution mode. The operation of the pen is simple. You point it at the selected area of screen and touch two metal contacts. When the contacts are closed, the software interrogates the relevant registers and the co-ordinates of the pen tip obtained.

The games supplied included Othello, Draughts, Life and a crossword generator. The standard of the games was generally average and they are more of value as sources of idea than as games. The high resolution package, on the other hand, is first class. Using the software you can draw lines, circles, quadrilaterals or draw freehand on two screens.

There is also a wide range of commands including fill, invert, zoom, pen averaging, merging screens and put (for copying areas), which enable you to produce complex designs and pictures. A routine for producing hard copies is a welcome addition.

Stack is clearly keen to push the computer aided design capabilities of the pen and supplies electrical and architectural templates as an aid. I can certainly imagine the average user wanting such an aid to help plan furniture, but I can't quite see the 64 as a real CAD computer.

This is an excellent product, which is good value even if you leave out the 10 games, which came free. The hardware is well made and the instructions first rate. **A.W.**

instructions	95%
ease of use	85%
graphics	N/A
value for money	90%

★ ★ ★ ★

Digital Lab C64 — disc

Digital Lab is a well thought out program which allows you to analyse logic circuits you construct on the screen. The manual which accompanies the disc is very clearly written for the end user and is printed on high quality paper.

A spreadsheet type of approach is adopted to the building up of the logic circuits. This sheet consists of 99 rows and 99 columns. To build up a circuit is very simple. You move the cursor to the required position on the spreadsheet and press RETURN to freeze on to this cell.

Pressing return also activates the menu cursor. The menu consists of various logic elements, e.g., a two input AND gate, an inverter, links and junctions etc. You move to the symbol required and press RETURN again and a copy of the symbol will immediately appear in your chosen cell. You repeat this process, moving around the spreadsheet adding in symbols and links as you go.

The program has inbuilt validity checks which prevent you creating impossible connections as you go along. For example, a device having three outputs cannot be immediately followed by one having a single input. You have to specify by means of the link symbols where each of the outputs go.

However, the purpose of the program is to analyse the circuit you have constructed. You have the facility to label every input and every output using letters of the alphabet, i.e. A, B, C, etc. The program then carries out a logic analysis and displays a truth table for your circuit. This truth table is displayed in a window superimposed over your circuit and when the truth table is large you can scroll it, if necessary, independently of the circuit.

Finally, disc handling routines allow you to save your circuit to disc as a file, rename or delete it.

I can't fault this program or the 57-page manual. The program never crashed and it always behaved as expected. The manual contains several keystroke-by-keystroke worked examples. It was very clearly written and in working through it I did not encounter any printing errors.

I can only think of ways of extending the facilities. I would have liked a print out option which would allow the circuit and truth table to be dumped to a printer, ideally with options for non-Commodore printers. **L.C.**

instructions	90%
useability	80%
graphics	90%
value for money	80%

★ ★ ★ ★

Choplifter
C64
£12.95

Ariolasoft, 72 Westfields Ave, London SW13 0AU

This is a rescue mission game. You fly your helicopter to rescue 64 hostages and airlift them back to base.

The graphics and animation are good. You control your helicopter with the joystick and move it across the landscape. When you see some of the hostages running around you then set about arranging a careful touchdown. While you are down you need to keep a lookout for tanks.

The hostages behave realistically, running arund in all directions, converging onto the helicopter when it lands. When you have collected 16 you must fly back to base.

In addition to the tank you will encounter jet fighters who use air-to-air missiles. There are also air mines which home in on you. All in all it's quite a mission. Fortunately you have three lives.

The screen displays the number of hostages, killed, on board the helicopter, and returned to base. I liked playing this. Deciding where to land and outwitting the tanks gave a certain satisfaction. However, my copy kept on crashing out and resetting the computer which was annoying. **L.C.**

instructions	70%
playability	70%
graphics	60%
value for money	60%

★ ★ ★

Software Star
48K Spectrum
£6.95

Addictive Games

The object of the game sounds original; you are the head of a software company, just starting out with one program.

Your aim is to get one product to the top of the charts, and make a profit. But the software market is highly competitive, and the going is tough.

If Addictive was to play with this program, they'd fail at an early stge. This bright idea is just a business simulation program, and a poor simulation at that.

Several decisions you make are quite trivial. Are your advertisements honest, or a 'hype'? Do you provide your workers with an incentive, or discipline (yes or no)? There are some real decisions: how much advertising, when to start developing new software, and when to launch it, but the trivial stuff gave the impression that, as an entrepreneur the player doesn't have any real control.

There are too few graphics, just page after page of questions, and figures; the only slight excitement being the rise of your game up the software charts. **D.N.**

instructions	30%
playability	20%
graphics	20%
value for money	30%

★

Heathrow International Air Traffic Control
48K Spectrum
£7.95

Hewson Consultants, Hewson Hse, 56B Milton Trading Estate, Milton, Abingdon, Oxon

A must for any aspiring Air Traffic Controller, this program is beyond those whose main computer interest is games. For a start, you must understand bearings and assimilate the complicated instructions contained in a small twenty page booklet.

After LOADing, a menu appears offering seven levels of play and a demonstration. By watching this repeatedly, in conjunction with the booklet, the instructions needed to land the aircraft can be learnt. Then it's suggested that Basic Vectoring (Level One) be tried.

The major part of the screen has the radar display, with the three or four holding stacks with circling aircraft, and in the centre are the runways with, at either end, the ten miles of centrelines. At screen right is the stack display for the aircraft showing altitude, heading and speed. The top displays your radio communications and any responses made.

I'm sure that, with plenty of practice, one would master the problems of landing the aircraft safely before the thirty minutes time limit's up. **T.W.**

instructions	90%
playability	50%
graphics	30%
value for money	30%

★ ★

Stimulating simulations

If you like to see how the experts do things then here's a page of simulations for you

Superchess
3.5
48K Spectrum
£9.95

CP Software, 2 Glebe Rd, Uxbridge, Middx

CP Software has always produced the best Spectrum chess programs. The latest version of the marvellous Superchess programs continues this trend. Not only does this program play a powerful game, but it offers a wide range of features.

For microdrive owners, one of the most attractive is the ability to save the program on microdrive, directly through a menu option. You can also ask the computer for advice on a move, or force it to play your move for you. If you believe you are being too badly slaughtered, then you can handicap your opponent by forcing the computer to move without thinking more about it. You can even change player positions, leaving it to sort out your mess, while you play from it's strong position!

The screen display is rather plain and unimaginative, but there is so much going for this program that such a slight blemish can easily be overlooked. **D.N.**

instructions	80%
playability	90%
graphics	50%
value for money	90%

★ ★ ★ ★

Zaga Mission
C64
£7.95 tape

Anirog

Sorry Anirog, I don't like this one. I know the graphics are brilliant and the idea has been successfully implemented by other companies. I just didn't enjoy it.

The mission is to fly your helicopter through a maze of walls and security doors gone haywire to reach the next refuellng pad, and so on until your destination. The walls have arches, tunnels and holes that must have been the work of a team of horribly demented brickies.

The 3D effect is superb but it takes getting used to. I flew more by the height gauge and watching the shadow than by watching the copter. Watching the helicopter often resulted in crashing on what looked like a clear path. No doubt I could learn, but handling the helicopter was slow and stodgy so I couldn't summon up the enthusiasm. I couldn't watch the red and white bricks for long without getting eye-ache in any case.

Perhaps I'm unfair; you might love Zaga Mission. I'd say it's a 'try before you buy' game. **B.J.**

instructions	75%
playability	60%
graphics	95%
value for money	70%

★ ★

Wacky bats

It's bat and ball time in Nigel Thomas's game for the BBC

This is a bat and ball-type game for the BBC B. The idea is to stop the ball reaching the bottom of the screen by rebounding it against the three walls with your blue bat. One point is scored each time you hit the ball, and your present score and number of lives are displayed at the top of the screen. You start off with five lives and a high score routine is included.

How it works

0-5 titles
10-20 set MODE
30 speed up auto-repeat
40 remove flashing cursor
50-130 define graphics
140 redefine logical colour
150 set background
160 title page
170-350 set up screen
360-550 move ball, make rebounds
560-590 move bat
600-610 put score and lives at top of screen
620 return loop
630-670 end of game routine
680 stop auto-repeat
690-700 another go?
710-800 return to title page

Variables

a title page
S present score
L number of lives
A set up walls
X horizontal position of ball
Y vertical position of ball
D direction of travel
XX position of bat
HS high score
c keep titles on screen
X$ bat graphics
ZX$ another go?
A$ move bat?

```
0REM**************
1REM* Wacky Bats *
2REM*Copyright(c)*
3REM*    1984     *
4REM*Nigel Thomas*
5REM**************
10a=0
20MODE1
30*FX11,1
40VDU23;8202;0;0;0;
50VDU23,140,0,0,0,255,0,255,0,255
60VDU23,141,0,0,0,31,16,23,20,21
70VDU23,142,0,0,0,248,8,232,40,168
80VDU23,143,168,168,168,168,168,168,168,168
90VDU23,148,21,21,21,21,21,21,21,21
100VDU23,144,7,31,63,127,127,63,31,7
110VDU23,145,255,255,255,255,255,255,255,255
120VDU23,146,224,248,252,254,254,252,248,224
130VDU23,147,60,126,255,255,255,255,126,60
140VDU19,2,4,0,0,0
150COLOUR128
160IFa=0 THEN GOSUB 710
170S=0:L=5
180CLS
190IFL=0 THEN 630
200COLOUR1
210FORA=1 TO 38
220PRINTTAB(A,1);CHR$(140);
230NEXTA
240 PRINTTAB(0,1);CHR$(141);:PRINTTAB(39,1);CHR$(142);
250FORA=2 TO 29
260PRINTTAB(0,A);CHR$(148);:PRINTTAB(39,A);CHR$(143);
270NEXTA
280X$=CHR$(144)+CHR$(145)+CHR$(146)
290X=RND(10)+10:Y=27
300D=RND(2)
310COLOUR2
320PRINTTAB(0,0);"Score";
330PRINTTAB(25,0);"Lives";
340XX=20
350PRINTTAB(XX,30);X$;
360PRINTTAB(X,Y);" ";
370IFD=1 THEN X=X-1:Y=Y-1
380IFD=2 THEN X=X+1:Y=Y-1
390IFD=3 THEN X=X-1:Y=Y+1
400IFD=4 THEN X=X+1:Y=Y+1
410COLOUR3
420PRINTTAB(X,Y);CHR$(147);
430IFY=31 THEN L=L-1:SOUND1,-15,1,20:GOTO 180
440IFX=1 AND Y=2 THEN D=4:SOUND1,-15,60,1:GOTO 560
450IFX=38 AND Y=2 THEN D=3:SOUND1,-15,60,1:GOTO 560
460IFX=1 AND Y<>29 THEN D=D+1:SOUND1,-15,60,1:GOTO 560
470IFX=38 AND Y<>29 THEN D=D-1:SOUND1,-15,60,1:GOTO 560
480IFY=2 THEN D=D+2:SOUND1,-15,60,1:GOTO 560
490IFY=29 AND X=1 AND X=XX THEN D=2:S=S+1:SOUND1,-15,60,1:GOTO 560
500IFY=29 AND X=38 AND X=XX+2 THEN D=1:S=S+1:SOUND1,-15,60,1:GOTO 560
```

BBC PROGRAM

```
510IFY=29 AND X=XX THEN D=D-2:S=S+1:SOUND1,-15,60,1:GOTO 560
520IFY=29 AND X=XX+1 THEN D=D-2:S=S+1:SOUND1,-15,60,1:GOTO 560
530IFY=29 AND X=XX+2 THEN D=D-2:S=S+1:SOUND1,-15,60,1:GOTO 560
540IFY=29 AND X=XX-1 AND D=4 THEN D=1:S=S+1:SOUND1,-15,60,1:GOTO 560
550IFY=29 AND X=XX+3 AND D=3 THEN D=2:S=S+1:SOUND1,-15,60,1:GOTO 560
560A$=INKEY$(0)
570 COLOUR2
580IFA$="," AND XX>1 THEN XX=XX-1:PRINTTAB(XX+3,30);" ";:PRINTTAB(XX,30);X$;
590IFA$="." AND XX<36 THEN XX=XX+1:PRINTTAB(XX-1,30);" ";:PRINTTAB(XX,30);X$;
600 COLOUR3
610PRINTTAB(7,0);S;:PRINTTAB(32,0);L;
620GOTO360
630MODE7
640PRINTTAB(11,1);CHR$(141)+CHR$(132)+"WACKY BATS "
650PRINTTAB(11,2);CHR$(141)+CHR$(134)+"WACKY BATS "
660PRINTTAB(5,4);CHR$(129)+"You scored ";S;" points.";
670IFS>=HS THEN PRINTTAB(5,5);CHR$(130)+"Thats a high score!";:HS=S ELSE PRINT
TAB(5,5);CHR$(131)+"The high score is ";HS;" points."
680*FX11,0
690 PRINTTAB(8,20);CHR$(133)+"ANOTHER GO (Y/N)?";:INPUTZX$
700 IFZX$="Y" THEN 20 ELSE 690
710COLOUR1
720PRINTTAB(13,1);"WACKY BATS"
730COLOUR2
740PRINTTAB(10,5);CHR$(144)+CHR$(145)+CHR$(146)+"........your bat";
750COLOUR3
760PRINTTAB(10,7);CHR$(147)+"........the ball";
761PRINTTAB(10,9);">........move right";
762PRINTTAB(10,11);"<........move left";
770a=1
780HS=0
790FORc=1 TO 5000:NEXTc
800RETURN
```

Programs are always supplied on cassette and are accompanied by full details of the program variables, how the program works and any hints on conversion you can offer. Please type these details double spaced. Listings are helpful but not essential. What is vital is that the programs should be completely error free, so please double check.

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The world of sprites

Have fun playing around with sprites on your Commodore 64. Iain Murray explains all

One of the best features of the Commodore 64 is it's sprite graphics facility. Sprites (also known as movable object blocks or MOBs) are large user-defined characters which can be moved around very easily from BASIC.

The normal method of using 'sprites' on other machines is to plot each point of the object one at a time, until the whole object is built up. This takes up a lot of processor time, and can usually only be done in machine code. Also, as the sprites are really on the text screen, each 8 x 8 square can normally only have one colour, and this can lead to odd effects when two of these 'pseudo-sprites' meet one another, and usually existing text or pictures are destroyed by the new graphics.

The 64, however, has a separate video chip to do all the work for you, and it can move sprites around virtually instantaneously, and also offers extra sprite-handling facilities. The 64's sprites are not part of the text screen, and can be moved and coloured completely independently. Individual sprites can be programmed to pass behind or in front of the layer of text and each other. Colours, too, are improved on the 64: sprites can have up to three colours, plus the background, and these can be different to the text colours used, which can also have the three colours per square, so up to seven colours can appear in any 8 x 8 square on the screen.

An unexpected bonus of this graphical wizardry is that it uses up no more of the computer's BASIC memory. Up to eight sprites can appear on the screen at once, though any amount of sprite data may be defined in memory for use later.

The location of the data is generally unimportant (if it doesn't interfere with anything else) as a simple pointer tells the video chip where to look for each sprite. These pointers are located at memory addresses 2040 to 2047 for sprites 0-7 respectively. The number in these locations is one-sixty-fourth of the actual start address of the sprite data. Hence if your sprite data begins at 704, the value of the sprite pointer will be 704/64 = 11.

More than one of the pointers may point to the same data area, e.g. all pointers could be set to 11, resulting in eight identical sprites on the screen. The sprites have a screen priority, dependent on their number, though they can individually be set to pass behind or in front of the text layer. Hence 3D effects are very easy to create.

The sprite data itself consists of 63 consecutive bytes of memory. Each bit of this (eight per byte) can either be 'on' or 'off' (zero or one), and this pattern corresponds to the pixels of the sprite which are to be lit or not, e.g. if location 704 contained, say, 99, the first byte of the sprite would be:

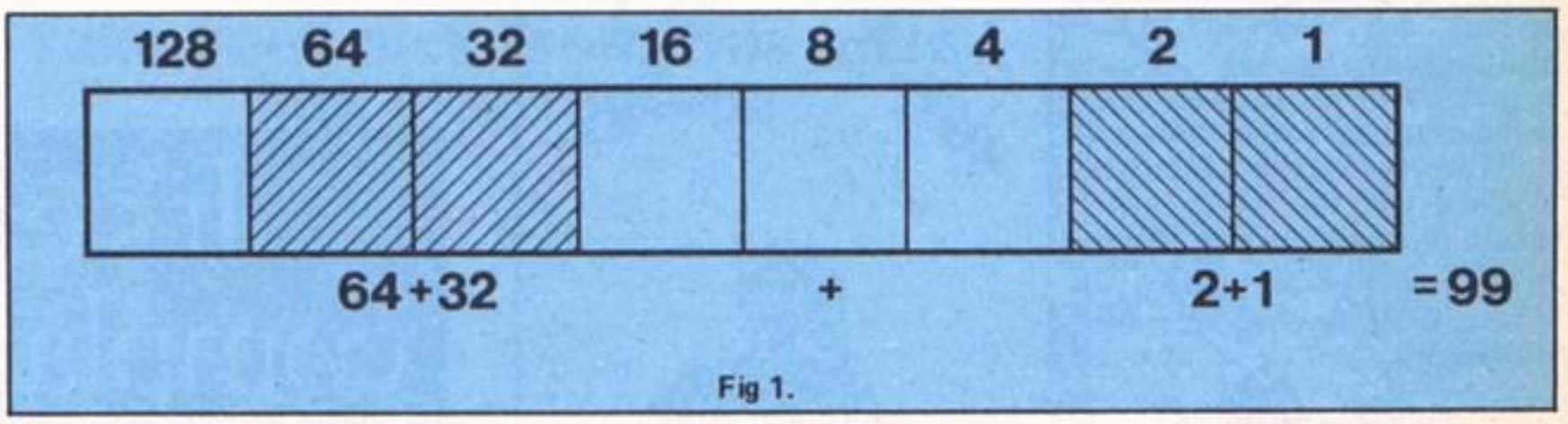

Fig 1.

This gives us directly the pixel pattern of the sprite on the screen — bits 'on' will appear as the sprite colour, while those 'off' will seem transparent, allowing the background colour to show through holes in the sprite. These bytes of pixels are arranged in three columns of bytes with 21 bytes in each column, giving a sprite with 24 x 21 pixels.

For normal BASIC programs, the sprite data is stored in DATA statements, and it is POKEd into memory at the start of the program ready to be manipulated as required.

Obviously, with a complicated sprite, the data may take a while to calculate from a sketch, but a number of sprite creator programs have been published. These allow you to see the sprite on the screen as you create it, and you aren't concerned with the numbers at all. However, if you plan to use the sprite in another program, make sure the program you use can print out the sprite data to the screen or a printer.

As mentioned earlier, the sprite memory location pointers are at locations 2040 to 2047, and give the start location of the sprite data. The other sprite functions are controlled from a block of memory starting at 53248 up to 53294. From BASIC, this block is usually accessed by setting a variable, often SS or V, to 53248 and adding on the required amount for the other locations. This is the method employed in the following descriptions.

Other graphics modes also have data storage in this memory area, but we will only look at those concerned with sprites at the moment:

V - V + 15: X and Y co-ordinates for sprites Ø-7. These registers contain the X and Y co-ordinates of the sprites, with respect to an origin in the top left of the screen. There is a border around the screen, and hence sprites can move off screen under this border, like a picture behind a frame. The actual co-ordinates of the visible part of the screen are as follows:

X=24, Y=5Ø X=344, Y=5Ø
X=24, Y=25ØX=344, Y=25Ø

Hence any part of a sprite outside this range will be partly obscured by the screen border.

V + 16: X co-ordinate most significant bit (MSB). As values up to only 255 are possible in memory locations, another register is needed to fully specify the C co-ordinate. This is at V + 16, and for each bit set in this register, the corresponding sprite will appear on the right hand part of the screen, e.g. to put sprite Ø at X=3ØØ and Y=2ØØ, type:

```
POKE V+16,1:POKE V,3ØØ-
  255:POKE V+1,2ØØ
```

V+ 32,V+33,: Normal screen background and border colours are in this data block (5328Ø, 53281). Colours are given by the numbers Ø-15 (Ø-black, 1-white, 2-red, etc).

V+39 - V+46: These registers contain the colours of sprites Ø-7 respectively. The numbers of the colours are as for the screen and border colours.

V+21: Sprite enable register. Bits Ø-7 are enabled (visible) or not. Hence, to see a sprite, it's bit in this register must be set to a '1' e.g. to turn on sprite 6, type POKE V+21,64 (as 2 to the power 6 is 64).

V+24, V+29: Vertical and horizontal expansion. As with the sprite enable register, each bit of these registers corresponds to a particular sprite, but in these registers a set bit indicates that a sprite will be double it's normal size in that direction, and hence gives four possible sprite dimensions (small, large, long, tall).

V+27: Background priority. Normally, sprites will pass in front of the text on the screen, but setting the appropriate bit in this register will cause the sprites to pass behind the text layer.

V+3Ø, V+31: These locations cannot be POKEd to, but by PEEKing at them will give sprite collision details. Bits set in V+3Ø indicate that the corresponding sprite is in collision with another sprite. Similarly, bits set in V+31 indicate a collision between that

The world of sprites

sprite and a text character on the screen.

These registers do not affect the movement of the sprites, but make collision detection easy (only those parts of the sprite which are visible will collide at all!).

V + 28: Sprite multicolour select. Normal sprites are all one colour, but setting the relevant bit in this register will put a sprite into multicolour mode. Now the sprite data is read by the computer in bit pairs — pairs of pixels on the screen. If both are empty, then those pixels are invisible as before. If only the left hand pixel is on then BOTH pixels will be the sprite colour as before.

If only the right hand pixel is on then both will be sprite multicolour 1 (this colour is at location V + 37), and if both are on then they will both be sprite multicolour 2 (at V + 38). These colours are defined as for the screen colours, but unlike the sprite colour registers, these two colours are common to all multicolour sprites. Multicolour mode allows quite detailed sprites to be built up.

These are the facilities available on the 64 to manipulate the sprite picture blocks. A good deal of fun can be had from playing around with sprites.

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Thrusta
C64
£5.95

Software Projects, Bearbrand Complex, Allerton Rd, Woolton, Liverpool L25 7SF

This is a simple arcade game. You are on the planet Spectra with your spaceship, Thrusta 1, and you push boulders off platforms to squash the monsters hatching out of the eggs at the bottom of the screen, while avoiding the lethal guards. There are eight monsters to a screen, and about 10 different screens, all with the same pattern of platforms but different monsters and guards.

I thought at first that the game had a serious bug, because the guards appeared and the eggs started hatching, but there was no sign of my spaceship. However, when I pressed Return the game re-started complete with a spaceship, which was a great relief.

It's quite good, but not particularly difficult, so it's more suitable for fumble-fisted amateurs than arcade aces. You start off with three lives and earn another for every three screens you complete, which is enough to keep an expert going until terminal boredom sets in. If you find a lot of arcade games too difficult though, take a look at this one. **M.N.**

instructions	50%
playability	70%
graphics	65%
value for money	60%

★ ★ ★

Perils of Bear George
C64
£6.95

Cheetah Soft, 24 Ray St, London EC1

George is a cute little bear. He wanders through an orchard under your control, tilting his head up occasionally to eat one of the apples which are falling from the trees. A squirrel dodges about above him, dropping nuts on his head which stun him and prevent him from moving for a few seconds.

Just when you are beginning to get the hang of catching apples, winter comes and George has to make his way across the snow to a cave to hibernate, avoiding skiers and other hazards as he does so. Then it's back to the orchard again.

This game has very attractive graphics, and I liked the music — Teddy Bear's Picnic, of course — but that doesn't alter the fact that it is essentially boring. Catching apples is not a very exciting activity; it's not easy to do, and the rewards when you succeed are not sufficient to justify the effort involved.

The delays while you wait for George to recover consciousness after being hit by a nut or a skier add to the tedium, and I really can't recommend this one. **M.N.**

instructions	70%
playability	30%
graphics	85%
value for money	40%

★ ★

Cuthbert and the Tombs of Doom
C16
£6.95

Microdeal, 41 Truro Rd, St Austell, Cornwall

'In the year 6502 BC Jesmon Hys of Nodlon discovered ye ancient tombs of Ledromica.' Cuthbert, who has found this ancient manuscript has decided to enter the tombs in an attempt to reach the Temple of Ra, if he is successful he will become the high priest of Ra and therefore virtually invicible!

Before Cuthbert can attain this goal he must negotiate about 200 chambers filled with nasty beasts such as Ghostly Ghouls, Beastly Bats and Sadistic Saxaphones. These teleport into the chamber which Cuthbert is exploring and if they touch him it can be fatal. Ra has given Cuthbert the power to zap these nasties, but only in a horizontal direction.

The game has a number of other features, and these make it so good that it is more complex than usual for a C16 game.

The graphics are the best I've seen on the C16 so far and the movement is very fast while still smooth.

I found it very enjoyable to play and also quite difficult, it will take me a long time to finish this one. If you have seen this on the C64 and liked it, then rush out and buy this version, because it's just as good. Quite an achievement!

instructions	95%
playability	85%
graphics	100%
value for money	80%

★ ★ ★ ★ ★

Mix 'em up

Take your pick from this mixed bag of programs

Heathrow International Air Traffic Control
Amstrad CPC464
£7.95

Hewson Consultants, 56B Milton Trading Est, Milton, Abingdon, Oxon

This fascinating simulation encompasses the problems associated with the work of an air traffic controller.

Two locations are offered, each having eight levels of difficulty.

The objective is to land ten aircraft within a set time limit. A full report based on your performance is given at the end.

Your responsibility is only for planes that are landing, though avoidence of outgoing traffic is essential!

The main display is a radar scan depicting the location and altitude of incoming aircraft. The runways and approach flight paths are shown at the centre.

On the right of the display are listed all the various parameters and their values for each plane. Each type needs to be landed within it's individual limits, approach speed and altitudes being critical.

Each plane needs to be Localised on it's approach to the Glide Path, then Established before acquiring Final Approach for a safe landing.

Accompanying the cassette is a comprehensive instruction booklet, which is easily understood. **D.H.**

instructions	100%
playability	100%
graphics	100%
value for money	90%

★ ★ ★ ★ ★

Colossus Chess
48K Atari
£9.95

English Software, 50 Newton St, Piccadilly, Manchester M1 2EA

Colossus Chess is a formidable chess program and probably rates as one of the best of it's kind.

It contains an opening 'book' of approximately 3000 moves which allows Colossus to consider the vital starting moves and hence play an intelligent and aggressive opening. Coupled with it's ability to consider over 450 moves per second, it is hardly surprising that it has an estimated British Chess Federation rating of 150 (1800 ELO) and has consistently beaten such opponents as White Knight II, Cyruss IS and Sargon III.

All required data can be quickly entered via the cursor and return keys. The level of play is dictated by the amount of time the computer is allowed to consider it's move. This can be from one second to several hours.

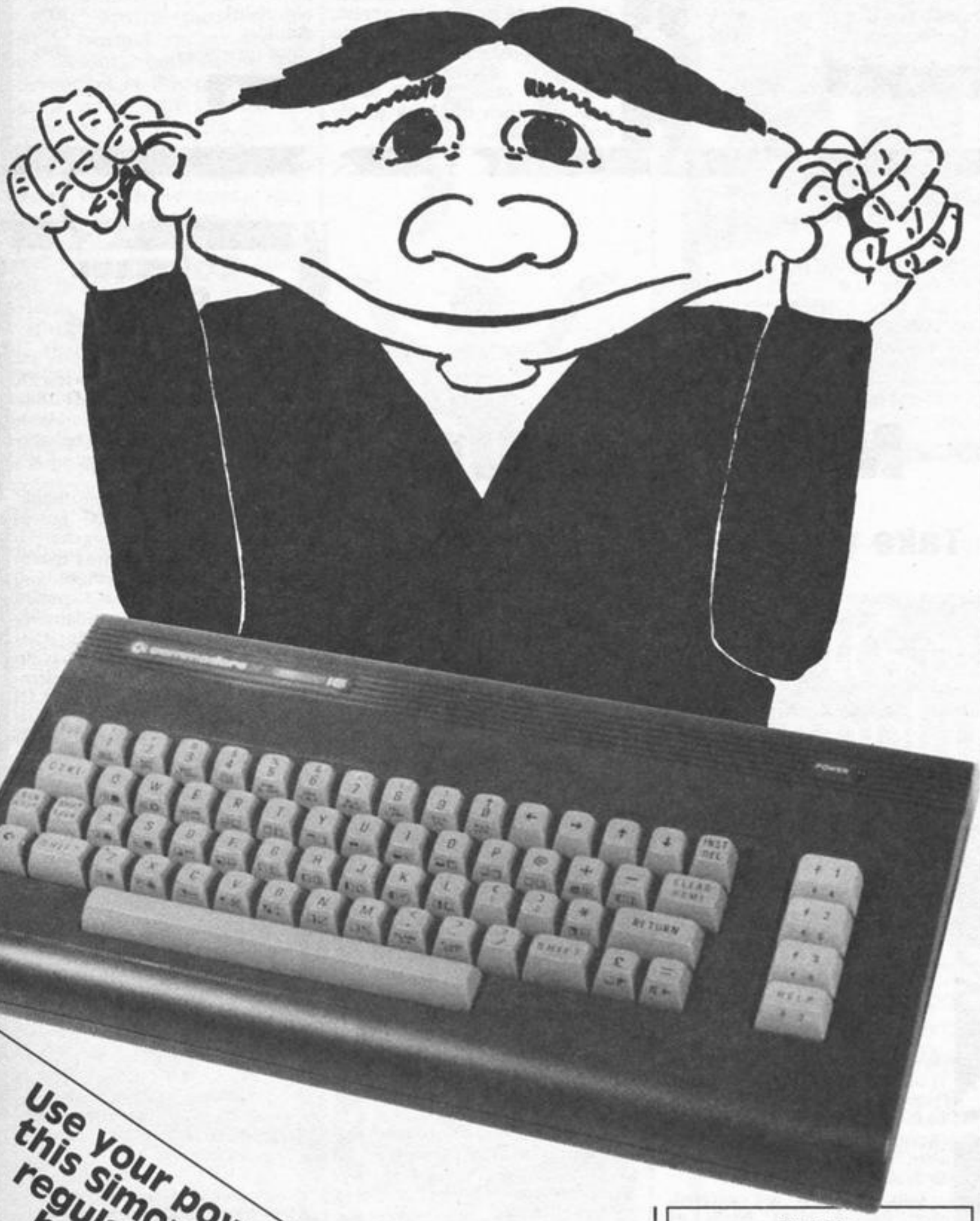
Colossus allows you to set up the board for a problem, run through a completed game or take back any of the previous 120 moves. It will also demonstrate your best move. You can also stop it's thinking to force it to use the best move already thought out. Colossus is also capable of recognising most situations and countering aggressively.

Truthfully it is the best computer chess I have ever seen and I recommend it to any Atari owner as the best chess available for this machine, beginners and experts alike. **A.K.**

instructions	90%
playability	100%
graphics	80%
value for money	100%

★ ★ ★ ★ ★

Brain stretching!



This is a computerised version of the familiar game of Simon. The computer will play a sequence of musical notes and display coloured blocks on the screen. You must try to repeat the sequence using the keys: **R, Y, C, B.**

Each time you complete the sequence, you will score one point and the length of the sequence will increase by one. To make life more difficult, you must complete the sequence before you run out of time. Your time limit is determined by the difficulty level, which you can choose at the start of the game.

Hints on conversion

This game uses many of the features peculiar to Commodore machines and conversion to anything other than the Commodore or VIC-20 would necessitate completely rewriting the program.

Commodore 64 owners might find the following hints useful.

1 SCNCLR is used to clear the screen
2 DO... LOOP UNTIL loops must be replaced with a conditional GOTO jump
3 The sound commands must be POKEd in

Variables

SC score
B$ sequence of notes
ZX length of sequence
A,A$ random number and letter
**C$** substring of B$
M$(x) holds messages
E$,Z$,X,AC,XX,XY general variables
TT time limit

How it works

40 selects text/graphics mode and disables the shift Commodore key
50-70 titles
80-100 set messages
110-150 instructions
160-180 wait for space bar and randomise program
190 clear screen
200-240 **select difficulty level**
250-320 main control loop
330-360 display correct sequence
370-380 give score
390-430 run program again
440-520 select random box/sound
530-670 display sequence
680-800 your turn to try sequence
810-1090 display graphics blocks and make sound

Use your powers of memory in this Simon-type game by HCW regular Steve Lucas. It's for both the C16 and Plus4

PROGRAM

```
10 REM ** "FLASH" **
20 REM ** "A GAME OF MEMORY FOR THE COMMODORE 16/PLUS 4" **
30 REM ** STEVE LUCAS ... JANUARY 1985 **
40 PRINTCHR$(142);CHR$(8)
50 E$="":FOR X=1 TO 10:E$=E$+CHR$(166):NEXT
60 SCNCLR
70 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■FLASH"
80 DIM M$(10):FOR X=1 TO 6:READ M$(X):NEXT X
90 DATA "WATCH","NOW REPEAT","CORRECT","WRONG","THE CORRECT SEQUENCE WAS"
100 DATA "TOO SLOW"
110 PRINT"■■■■■A GAME OF MEMORY FOR THE C16/PLUS 4"
120 PRINT"■■■WATCH THE SCREEN WHILE COLOURED SQUARES FLASH IN A RANDOM SEQUENCE.
"
130 PRINT:PRINT"■  YOU MUST TRY TO REPEAT THE SEQUENCE   USING THE KEYS':-"
140 PRINT"■■■■■■■■■■■■■■■■■■■■R■■■Y■■■B■■■■■C"
150 PRINT"■■■■PRESS THE <SPACE BAR> TO START THE GAME."
160 GET Z$
170 Z=RND(1)
180 IF Z$<>" " THEN 160
190 SCNCLR
200 PRINT"■■■■   PLEASE SELECT THE DIFFICULTY LEVEL. ■■■"
210 PRINT"■1>.   EASY"
220 PRINT"2>.   HARD"
230 GET Z$:IF Z$="1" THEN X%=40:ELSE IF Z$="2" THEN X%=20:ELSE 230
240 SC=0:AC=0:B$="":REM **"B$ IS USED TO HOLD THE SEQUENCE"**
250 DO
260 GOSUB 450:REM **"ADD A LETTER TO THE SEQUENCE HELD IN B$"**
270 GOSUB 540:REM **"DISPLAY THE BOX"**
280 GOSUB 680:REM **"TRY TO REPEAT THE SEQUENCE"**
290 IF TT>X%*4 THEN SCNCLR:PRINT"■■■■■■■■■■■■■■■■";M$(6):AC=1:GOTO 330
300 IFAA$<>MID$(B$,ZX,1)THEN PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■■■";M$(4):AC=1:GOTO 330
310 SC=SC+1
320 LOOP UNTIL AC>0
330 PRINT"■■■■■■■■■■■■";M$(5)
340 FOR X=1 TO 1000:NEXT X:SCNCLR
350 REM **"DISPLAY THE CORRECT SEQUENCE "**
360 FOR X=1 TO LEN(B$): GOSUB 540:NEXT
370 SCNCLR
380 PRINT"■■■■■■■■■■■■■■YOU SCORED :- ";SC
390 PRINT"■■■■■■■■■■■■■■■■■■■■■■■■■■ PRESS THE <SPACE BAR> FOR ANOTHER GAME."
400 GET A$
410 IF A$<>" " THEN 400
420 RUN
430 END
440 REM **"SUBROUTINE TO SELECT RANDOM LETTER AND ADD IT TO B$"**
450 A=INT(RND(1)*4)+1
```

```
460 IF A=1 THEN A$="R"
470 IF A=2 THEN A$="Y"
480 IF A=3 THEN A$="C"
490 IF A=4 THEN A$="B"
500 IF A>4 OR A<1 THEN 450
510 B$=B$+A$
520 RETURN
530 REM **"DISPLAY THE SEQUENCE"**
540 SCNCLR
550 PRINT"[CURSOR RIGHT][RVS ON][RVS OFF]";M$(1)
560 FOR X=1 TO 1000:NEXT X:REM "** ADJUST THE TIME DELAY TO SUIT "**
570 SCNCLR
580 XY=LEN(B$):XX=0
590 DO
600 C$=MID$(B$,XX+1,1)
610 IF C$="R" THEN S=1:ELSE IF C$="Y" THEN S=2:ELSE IF C$="C" THEN S=3
620 IF C$="B" THEN S=4
630 ON S GOSUB 820,890,960,1030
640 FOR X=1 TO X%*3:NEXT X
650 XX=XX+1
660 LOOP UNTIL XX=XY
670 RETURN
680 SCNCLR:PRINT"[CURSOR DOWN][RVS ON][RVS OFF]";M$(2)
690 FOR X=1 TO 500:NEXT X:REM **"ADJUST TIME DELAY TO SUIT "**
700 TT=0:ZX=0:SCNCLR
710 TT=TT+1
720 GET AA$
730 IF AA$<>"R" AND AA$<>"Y" AND AA$<>"C" AND AA$<>"B" THEN 780
740 ZX=ZX+1
750 IF AA$="R" THEN GOSUB 820:ELSE IF AA$="Y" THEN GOSUB 890
760 IF AA$="C" THEN GOSUB 960:ELSE IF AA$="B" THEN GOSUB 1030
770 IF MID$(B$,ZX,1)<>AA$ THEN RETURN
780 IF ZX=LEN(B$) OR TT>X%*4 THEN RETURN
790 GOTO 710
800 RETURN
810 REM **"DISPLAY THE GRAPHICS BLOCKS"**
820 PRINT"[CURSOR DOWN][RVS ON][RVS OFF]"
830 FOR X=1 TO 8
840 PRINT"[RVS ON][RVS OFF]                "
850 NEXT X
860 VOL 7
870 SOUND 1,169,X%/2
880 RETURN
890 PRINT"[CURSOR DOWN][RVS ON][RVS OFF]"
900 FOR X=1 TO 8
910 PRINT"[RVS ON][RVS OFF]                                "
920 NEXT
930 VOL 7
940 SOUND 1,596,X%/2
950 RETURN
960 PRINT"[CURSOR DOWN][RVS ON][RVS OFF]":REM CURSOR DOWN
970 FOR X=1 TO 8
980 PRINT"[RVS ON][RVS OFF]                "
990 NEXT X
1000 VOL 7
1010 SOUND 1,810,X%/2
1020 RETURN
1030 PRINT"[CURSOR DOWN][RVS ON][RVS OFF]":REM CURSOR DOWN
1040 FOR X=1 TO 8
1050 PRINT"[RVS ON][RVS OFF]                                "
1060 NEXT
1070 VOL 7
1080 SOUND 1,917,X%/2
1090 RETURN
```

QL Bookware

If you're new to the QL, you may like to introduce yourself to the machine with the help of the written word. This week Colin Wilton-Davies looks at introductory books

One more thing. None of the books make clear the following sequence: *If* drives empty and power off *then* switch on. Insert Psion or other cartridge in drive 1 (left). *If* drives inactive *then* press RESET. *If* display = TV *then* press F2 *else* press F1. The QL will then look for a program called 'boot' (or 'Boot', for that matter) on the cartridge in drive 1. If successful, it will LOAD and RUN it; this will start QUILL, ABACUS, EASEL, ARCHIVE or any other package. All clear now, so on to the books.

Sinclair QL User Guide by Lionel Fleetwood, £7.50 from Sigma Press, aroused my hopes as I opened it. The contents are well sub-divided and offer different entry points for different levels of readership; I was also delighted to find an index. No, this is not the manual you get with the QL in spite of the identical title.

Those are all the good things I can say about this book. It is riddled with mistakes, and few of these can be printers' errors. The author includes many so-called keywords which don't exist in SuperBASIC, such as LGO, INVERSE and CAT. He fails to state whether certain words should be used in SuperBASIC or ARCHIVE, and gives many examples in which proper words are used wrongly.

In several cases his recommended sequences of keypresses have the wrong or no effect. He is confused about the use of printers with EASEL (but so are several other authors). The charitable view is that this book was written with t aid of a pre-production QL; it is certainly inapplicable to either the 'PM' version with 'dongle' or the 'JM' version without. Score one out of ten, a definite one to avoid.

Desk-Top Computing with the Sinclair QL by Barry Miles, £6.95 from Hutchinson, is one of a series from this publisher. Most of the book is taken up with a description of the Psion software. This is quite easy to read, but it is descriptive rather than instructive. A few more examples and a lot less chat and photographs would have pleased me better. SuperBASIC is covered in a way which is adequate for reference by a user but not for learning by a newcomer. The method used is to give an alphabetical list of keywords with fairly full comments and short examples. Not much to say about this book — you'll see why in a minute! Score five out of ten (yes, there's an index).

There are probably two main reasons for buying a book which will introduce you to a computer. One is that you are seriously thinking about getting the machine, and would like more information than the advertisement or brochure has to offer; you may also hope for a non-partisan view. The second is that you have just unpacked your new machine and find that the manual is not only enormous, but has no index.

I have therefore chosen to review three books this week, which I think try to satisfy these approaches to the QL. One of the great features of the QL is the bundled software which comes with it, and no introduction to this machine should fail to cover the suite of Psion programs. For this reason, I have classed a book sub-titled A Guide to the Sinclair QL in another category.

Reading these three books, which must be intended for people who are newcomers to the QL, if not to computing itself, I am dismayed to find common misconceptions about Microdrives. Some of these are serious enough to corrupt data and programs on the cartridges, so I feel I must precede the reviews by stating two Golden Rules for Microdrivers on the lines of 'clunk-click every trip':
1 Don't power on or off with a cartridge in any Microdrive
2 Don't reset when a Microdrive is running

These are the laws of the Medes and the Persians, but it is not necessary to extend them further. If you neglect them, you will swiftly corrupt something which may take many days to replace. On the other hand, I have never found any harm arising either from resetting with a cartridge in a *stationary* drive or from cautiously pulling out a cartridge from a drive which won't stop running. In the latter instance, you may well get an incompletely saved file, but not corrupt files.

Introducing the Sinclair QL by Garry Marshall, £6.95 from Hutchinson, is from the same series as the above book, and covers almost exactly the same ground! I find this very strange indeed. The review of the Psion software is more concise, and no less readable, but examples of use are even fewer. SuperBASIC has a very similar annotated list of keywords as Miles's book, but the list is at least preceded by a short introductory chapter. This does start the absolute beginner at the shallow end; what a shame that the first command used is 'LET', which is redundant in SuperBASIC. There is an index, so score is five and a half out of ten.

Why would anyone want to publish two books at once which are so nearly identical? Certainly nobody should buy both. On looking through the programming examples in the SuperBASIC sections of the two books, I found many which were identical both to each other and to those in the User Guide which came with my QL. Shock, horror, scandal! Did the series editor bribe Nigel Searle to write the forewords so that Sinclair wouldn't sue for breach of copyright?

HOME COMPUTING WEEKLY

Every Tuesday

45p

Home Computing Weekly is the magazine for:

- News, fast and up to date — read HCW first
- Hardware reviews, new machines and products reviewed fast
- Peripherals assessed, all the extras you could want, with in-depth comments
- Software selections; new software scrutinised carefully and quickly
- Programming features for all machines. Learn BASIC and machine code from our How to.... series
- Programs for all the popular machines each week
- Lots of letters and hints and tips

In fact, everything you've ever wanted from a weekly magazine

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Micro library

Take a look at what's new in the publishing world. Choose your topic — and someone's bound to have written about it

Amstrad CPC464

Title: An Amstrad CPC464 Compendium
Authors: Martin Gandoff and Robin Kinge
Published by: Addison-Wesley
Price: £7.95
Thirty games with introduction and screenshots.

BBC/Electron

Title: Simple Movement and Animation
Author: Jonathan Inglis
Published by: Granada
Price: £1.95
Programs, descriptions and colourful screen shots.

Title: The Art of Micro-computer Graphics
Author: Jim McGregor and Alan Watt
Published by: Addison-Wesley
Price: £14.95
Comprehensive guide to the theory and practice of microcomputer graphics.

Title: Simple Music and Sound Effects
Author: Jonathan Inglis
Published by: Granada
Price: £1.95
Programs, text and plenty of colourful screenshots.

Commodore C16/Plus4

Title: The Commodore C16/Plus4 Companion
Author: Brian Lloyd
Published by: Sunshine
Price: £5.95
Combined manual and beginner's course for the complete novice.

Commodore 64

Title: Beyond BASIC on your Commodore 64
Author: CI Burkinshaw
Published by: Sigma Press
Price: £6.95
Introduction to machine code or BASIC programmers.

Title: The Commodore 64 Book of Sound and Graphics
Author: Simon
Published by: Micro Press
Price: £8.50
Program listings and explanations

Electron

Title: Data Log
Authors: Roger Porkess, Derek Barker, Nigel Green, Peter Johnson and Colin Shearer
Published by: Collins Software
Price: £2.95
Workbook introducing colour, sound and graphics capabilities.

MSX

Title: Behind the Screens of the MSX
Author: Mike Shaw
Published by: Kuma
Price: £8.95
In-depth look at graphics screen displays. Refererence guide to MSX graphics capabilities.

Title: Tim Hartnell's QL Handbook
Author: Tim Hartnell
Published by: Interface
Price: £7.95
Step by step guide to Super-BASIC, with listings. Machine code multi-tasking clock is a feature.

General

Title: Micro-Maths
Author: Keith Devlin
Published by: Macmillan
Price: £5.95
Articles and problems taken from Devlin's regular column in the Guardian.

Title: The Byte Brothers go to a Getaway
Authors: Armada
Published by: 1.25
Five mysteries for you to solve, once you've typed in the listings.

Title: The Byte Brothers Record a Robbery
Authors: Louis and Floyd McCoy
Published by: Armada
Price: £1.25
Type in the listings then solve the five mysteries.

Title: Soft Computing Art and Design
Author: Brian Reffin Smith
Published by: Addison-Wesley
Price: £10.95
Exploration of the role of computers in art and design. Photos, artwork, explanations.

Title: The Big Fat Book of Computer Games
Author: Tim Hartnell
Published by: Interface
Price: £4.95
Collection of more than 30 games which can be converted for most popular home computers.

Title: Home Computer Benchtest
Author: Peter Bright
Published by: Century Communications and PCW
Price: £5.95
Buyers' guide to all popular home computers.

Title: Computer Literacy
Author: Vincent Walsh
Published by: Macmillan
Price: £4.95
Beginners' guide to ideas and technical vocabulary of computing. Comprehension questions and discussion points, tables, photos and artwork.

Title: Building with Logo
Author: Boris Allan
Published by: Sunshine
Price: £6.95
Introduction to creative use of the Logo language.

Title: Commodore 64 Music
Author: Ian Waugh
Published by: Sunshine
Price: £6.95
BASIC programs with explanations on music and sound effects.

Title: First Steps with your Commodore 64
Author: Carolyn Hughes
Published by: Fontana
Price: £1.95
Step by step guide to BASIC programming, with plenty of cartoons and listings.

Title: Winning Strategy Games on the Commodore 64
Author: Toby Matthews and Paul Smith
Published by: John Wiley
Price: £6.95
Ten long listings to type in, ranging from stock market investment to Grand Prix racing.

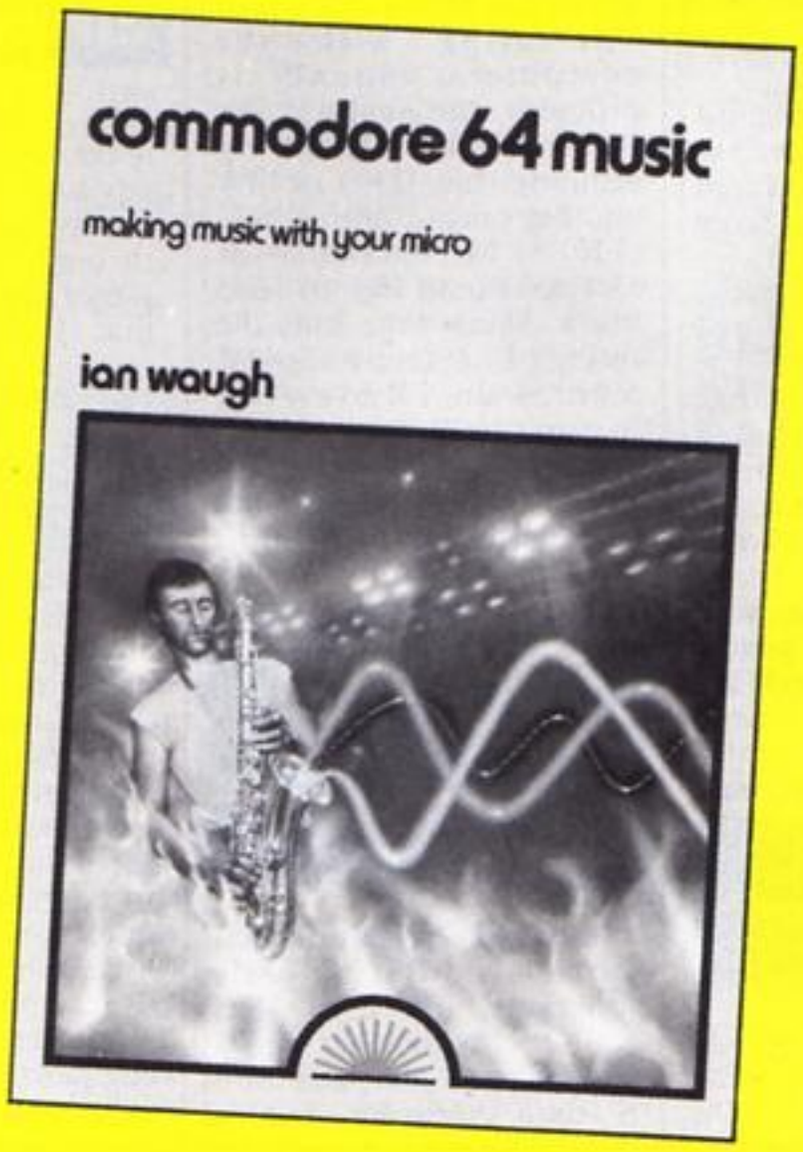
Title: The Commodore 64 for Kids of all Ages
Author: Tony Noble
Published by: Sigma Press
Price: £6.95
For younger computer users and teachers — introductory guide and listings.

Title: Commodore 64 Sound and Sprites
Author: Brian Boyde-Shaw
Published by: Sigma Press
Price: £7.95
Problem-solving approach to BASIC programming.

Title: Talking to the World
Author: John Newgas
Published by: Century Communications
Price: £5.95
Practical guide to computer communications, for beginners.

Title: The Urgently Needed Parent's Guide to Computers
Author: Brian Williams and Richard Tingey
Published by: Addison-Wesley
Price: £9.95
Reportedly, everything you need to know about computers.

Title: Microcosm
Author: Hal Gashtan
Published by: Lazy Summer
Price: £6.95
Highly illustrated puzzle book. Win £1000 and a trip to the States by Concorde.



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What the doctor ordered

I have an Amstrad CPC464 and I'm just writing to congratulate you on the Amstrad programming series.

This has got off to a tremendous start, giving us in-depth detail instead of simple listings, which, I might add, is just what the doctor ordered.

Might I suggest that some of the commands be dedicated to sprite design and movement with the ability to set the speed of the line/column movement. Also the ability to enlarge or shrink a sprite wouldn't go amiss.

As long as these are supplied with detailed explanations, as the first article was, more of the same please.

Michael Drury, Barnsley

Buzz off

In reply to Jim McLaren's letter (issue 95) who complained that his Texas computer keeps buzzing when the screen is full of text, I would like to make the following suggestions.

Firstly, he should check that his TV is tuned in correctly to the computer, preferably to the last channel button.

If this has no effect, he should test another computer or TV game on the same TV. If the buzzing is still apparent, then his TV needs special adjustment. If the buzzing goes, but returns when his computer is reconnected, then the fault is with his computer, most probably in the modulator box. This can be rectified by adjustment of it's internal preset controls and should be carried out by a qualified person (perhaps a TV repair man). If you try to adjust it yourself you could quite easily upset it completely. If the computer is still under guarantee then it should be returned to Texas for adjustment instead.

I have also enclosed some Texas computing tips.

To imitate Left$, Right$ and Mid$ try the following:

```
100 LEFT$=SEG$(word$,
    1,r)

100 RIGHT$=SEG$(word
    $,LEN(word$)-r+1,r)

100 MID$=SEG$(word$,
    LEN(word$)/2,r)
```

where word$ is the word to be 'sliced' up and r = the number of characters to be extracted.

When using sprites in Extended BASIC with joysticks try this idea to speed up sprite movement:

```
100 CALL SPRITE(#1,65
    2,100,100)
110 CALL JOYST(1,X,Y)
120 CALL MOTION(#1,
    -Y*S,X*S)
130 GOTO 110
```

In place of the 'S' you should insert any value from 1 to 30.

To speed up border creation try these:

```
100 CALL VCHAR(1,32,
    30,48)

100 CALL HCHAR(24,1,
    30,64)
```

Individual sprite detection:

```
100 FOR T = 1 TO 5
110   CALL COINC(#T,
    #28,8,H)::IF H = -1
    THEN CALL DELSP-
    RITE(#T)
120 NEXT T
```

between sprite numbers 1 to 5 coinciding with sprite number 28.

This could be very useful in a space-invader type program.

Zap and pow

I hope I can help D J Osbourne, Maidstone.

I too have a VIC-20 and I have found two books which I bought from Maplin Electronics, from PO Box 3, Rayleigh, Essex SS6 2BR.

The books are Zap! Pow! Boom! at £7.45, and The VIC-20 Games Book, £5.84. I know they work. I am 62 and have only started taking an interest in computing since April last year.

I know your games work but I've only been getting HCW since November last year.

D le Francois, Wallington

Steamed up

Why is it that I get all steamed up when I read your letters page? The answer is that nearly every week I see a letter slagging off the Spectrum. This abuse usually comes from TI users. All I have to say is that the Speccy has sold well over a million and the software for it is superb (remember, software maketh a micro).

You can now buy a Spectrum Plus for £129.95 and the keys don't fall out either! At the same time, I'n not slagging off the TI, CBM 64, Beebs, Dragons etc, because each machine has it's own virtues. Remember, one million odd Spectrum users can't be all that wrong!

Mark Tisdall, proud Spectrum owner, London

Thanks a million

The HCW editorial staff would like to thank Paul Spike and the other staff of Dixons' Regent Street branch for their help with computer equipment. We appreciate the prompt and courteous way in which they have supplied machines that we needed most urgently.

Solve those problems

I'm writing in response to two letters published in HCW 95.

The problem Jim McLaren has with a full screen interfering with the computer's sound is probably the fault of his television. He should try retuning his TV, or try another one.

If J M Parkhurst of Devises would like to send me a blank tape and the listing or his faulty copy of the program, I'll do my best to put it right.

Mark Lee, 89 Rotherham Rd, Maltby, Rotherham, S Yorks S66 8LZ

Down on the farm

I would like some information on writing file programs for my Atari 800XL. My brother and I received this computer with a data recorder for a Christmas present and we're not very experienced at writing programs yet.

I do computer studies at school, but unfortunately we use the BBC micro and the BASIC language is quite different for the Atari.

The reason for my request of information on file programs is that I live on a farm and would like to use our computer to help keep a record of insemination dates for cows.

I would be very grateful for your information on file programs.

Charles Clarke, Co Tyrone

We don't have the data here, but if any readers can help Charles we would be glad to pass on their information.

Conversion required

Can any readers help me? I own a 48K Spectrum and would like to get hold of any programs which convert other computer programs and games to run on my machine. Please could you send these programs to me at my home address.

C W Lobb, 4 Poltair Rd, St Austell, Cornwall PL25 4LS

Taken to the cleaners

I have been buying your magazine since the very first edition and I'm now receiving it by order through my newsagent. However, I regret to say that I shall probably be terminating this order since I'm dissatisfied.

Firstly, as had already been pointed out by several other readers on your letters page, your magazine has noticeably been getting thinner and thinner, although I was surprised to see your No.94 edition larger than usual.

Keeping with the actual look of your magazine I have found you have turned the majority of your pages to a cheaper newspaper type quality, which is horrible to touch and difficult to turn over.

I find that your competition page remains exactly the same week after week with either a spot the difference illustration or a word puzzle.

I owned a TI-99/4A for two years, but I now own a C64, which I got last Christmas.

I have found that your programs for both machines are often bug-infested and cheaply reproduced, so the print is either so small it is unreadable or faded so it appears part of the lines are missing.

The front cover, I am pleased to say, has increased in quality. It is more colourful and interesting than it used to be, but however, does not reflect the contents of the magazine.

Jonathan Hagan, Altrincham

Thanks for taking the trouble of writing to us, Jonathan, especially since you feel so strongly about the magazine.

We hope we'll be able to change your mind about HCW. We're due for a complete spring-clean and the magazine will be completely redesigned. Features like high-score tables, larger reviews and more in-depth articles will be our strong point, as well as hardware and peripheral reviews.

Sorry that you find the paper offensive, but we will be publishing on this lower quality paper for some time yet — the money we save in using this paper goes to higher quality editorial.

Competitions will also be overhauled and the prizes will be bigger and better. Watch this space for more details — and March 5 is the big day!

Creat C64

I am writing to tell you three things:

1 I have a 48K Spectrum and I like it very much, but the top keeps coming off. Can you tell me how to stop this?

2 I have written a little program. Here it is:

```
10 FOR N = 0 to 7
20 PLOT 100,100: DRAW
   N,40,4000
30 NEXT N
```

3 Can anyone come first in Full Throttle? The best I can do is 27th!

William Sharpe, Leicester

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I'm never first

I own a C64 and I can say I'm happy with it. I've had it for the past year and it's worked perfectly apart from a dust deposit under one key which had to be removed.

Recently I have read in HCW letters complaining about faulty 64s which had to be returned. The only thing I can say is that I know another 12 people in my school who have had their 64s for years without encountering any problems, so the rate of returns must be very low.

So stop moaning about faulty 64s. Commodore is the most reliable computer company I know.

Jon Chatten, Norwich

Help on Laser Zone

I have been buying your magazine since issue 25, and even went to great lengths to get hold of number one. I eventually got it from school.

I think your mag is tops for reviews. It always has about five pages of them.

I have some advice for anyone with Laser Zone for the 8/16K VIC-20. Load the game, then start on level one. Don't use any electros. It doesn't matter about losing a life.

After a score of about 4500, the Assault Repulsed message should appear. You will now gain an extra electro, so that you have four.

You should now be on level two. Lose all your lives on purpose. Now when the title sheet comes up again, select a harder level, then press fire to start. You should now start off with four valuable electros instead of three.

I'm not all that good at Laser Zone, but I've managed high scores using this technique.

Ian Langdon, Wolvey

Ghost roasting...

I have just read the latest HCW and I must write to you. Where do you get your software reviewers from? Ninety per cent of them give the software a fair review, but reading HCW 96, D.C. gave the Spectrum version of Ghostbusters five stars — a fair review!

I own a C64 and I have Ghostbusters. I think it is a brilliant game, I think it's as good as the Spectrum version or better. But M.W. doesn't agree, he/she gives it four stars and a bad review.

A friend of mine has got a Spectrum. He has played Ghostbusters on both machines and he says the Commodore version is the best.

So could you get rid of the reviewers who put people off buying good games?

David Harman, Whitstable

...and more

I am writing to complain about the review of the Spectrum version of Ghostbusters, given in HCW 95. It was given 100 per cent for every rating.

In the same edition the ratings for the C64 version were, extremely surprisingly, not the same.

If there were any difference I would have thought that the C64's version would be 100 per cent for all ratings and the Spectrum version's ratings would be lower. The music and graphics are much better on the 64.

In the same edition, when I looked at the C64 program it looked familiar, and that was because it was the same program as in a previous edition.

I think HCW's standards are going down.

Robert Kavanagh, Southgate

Speaking of spooks

After reading HCW 86 I just had to put pen to paper. I could not believe the reviews for Ghostbusters (Spectrum version versus Commodore version). Does reviewers' bias to a machine blind them when they are reviewing a rival machine's software? The Spectrum version of Ghostbusters scored 100 per cent in each category, plus five stars while the Commodore version received between 78 and 90 per cent plus four stars.

Have you ever played both? Well, I have. There's no comparison. The digital voice on the Spectrum is almost inomprehensible while the C64 one is very clear. The music on the Spectrum (which, by the way, stops when the game gets underway) is pathetic, while the C64 (with it's SID chip and three sound channels) is almost as good as the record. The fork lift truck loading system on the Spectrum is slow and tedious; it's easy and simple on the C64. I could fill the whole letters page, but I think I've made my point.

If you think I'm biased towards the C64, you're right, but six of my friends who have seen and played both versions agree with me. Out of them, four have no interest in computers and one is a Spectrum owner!

So come on HCW, your reviewers are paid to give honest and reliable reviews regardless of the make of the computer as we, the games (and magazine) buying public, reply on these reviews as a guideline to which software is good enought spend our hard earned money on.

D J Blake, Manchester

D.C. replies: When you review a game you have a great number of criteria to keep in mind. The most important as far as I'm concerned at least, is whether the game I'm looking at is one of the best I've seen for the machine in question.

Yes, the Commodore version is better, in almost every respect, but it doesn't stand as far above the opposition as does the Spectrum version. I stick by my remarks and scores: it's a great game for either machine, and I would recommend it to anyone. Please remember that we are paid, as you put it, to give our opinion, not to be objective — that's a total impossibility.

Suggestions box

Congratulations on issue 97, certainly the best issue. At last there is an almost equal ratio of programs, which I find boring, to features, which I love. The magazine has been improving a great deal recently, and I just thought I'd let you know my views.

The area I feel HCW could improve most is in reviews. The set style of five reviews per page scattered through the magazine is a bit stifling. Would it not be possible to have a more flexible review length and less rigid pages? Also would it be possible to print screen shots, which always improves reviews.

There is little other room for improvement. How about a games preview? Also a price drop would be nice, but probably impossible. I like the idea of machine specific pages within one issue — how about a Commodore, Spectrum or MSX page?

Leslie Miller, Cheadle

So many questions! We too would like to see many of the things that you propose in the magazine. There are some special new plans being made at the moment, but we can't give more details just yet.

Look out for issue 100 when a number of your questions will be answered. That will be a special birthday issue too, so you have a great deal to look forward to next week.

Manic tip

I have a tip for the Spectrum for all Manic Miner fans. Stop the tape about 11 seconds after it has begun to load, break the program and type 25 POKE 35136,0. ENTER it, push run and start the tape and let the program load. This enables you to play the game without losing any lives.

Amjad Yasin, Newcastle-upon-Tyne

Frustrated typist

I take HCW regularly from my local newsagent and I think it is a very good magazine, but it has one weakness.

There is no errata column and I have found several mistakes when programming games, some of which I have corrected myself.

I also find it difficult to distinguish between capitals and small 'l' in some of the listings. I have just typed in Steer Clear of Creepy Crawlies, HCW 93 and the graphics and UDGs do not appear at all.

I admit that printing erros do occur from time to time, but a small errata section would help enormously. The alternative is a loan tape copy service, so a corrected version could be available. I have been lent a copy by another magazine which I used to sort out my problems and then returned to them.

G H Austin-Smith, Moray

We do appreciate that mistakes in listings can be very frustrating and we apologise for the missing parts of Steer Clear of Creepy Crawlies (a correct version of this was published last week). If you have any problems you are welcome to write to us and we will try to sort them out as quickly as possible.

Lack of C16

I am writing to complain that there have been no programs for the C16 published in HCW. Please, HCW, could you try and get some programs published for this machine.

Could you also publish this letter so I can take it to school and show my friends.

Christopher Barnard, Basingstoke

We are very willing to publish C16 programs, and the first one will appear in HCW 102. Remember that we rely on good readers' submissions for our programs, and we are willing to consider all the programs which we receive. We will soon be starting a readers' page that will feature a high score table, so if you want your name in HCW then send us your hi-scores.

On the blink

My family bought a C64 computer just before Christmas and we are very pleased with it. The graphics are so clear that it is a real pleasure to use.

We have had a rather unexpected experience while using it and this makes me wonder whether it is worthwhile warning others.

I switched on another electrical appliance which was not in the same room as the TV and computer. The appliance was faulty and

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this caused the mains function box to trip and thus resulted in loss of power.

I wasn't very popular for a few minutes as the computer stopped working. The trip was switched on and as far as we could see, no harm had been done. When the game finished it became clear that something had happened. The screen was full of different coloured squares all flickering about.

On trying to enter another program we found it wouldn't work properly and what came up on the screen was in black and white, we had lost the colour. Fortunately the TV channels appeared OK, but not quite as perfect as they should be. Somehow the computer channels on the set had done a bunk and no way could we get them back. We had the computer changed and everything is back to normal.

I have never seen any warnings on TV sets about this trouble occuring, and would like to take this opportunity to warn people.

D J Osborne, Maidstone

Fred's Fan

With reference to your reviews in your December issue, I was surprised to find a so-called review on a game just released by Software Projects under the Supersavers label, called Fred's Fan Factory.

I would have thought that you would have the responsibility to your readers of being objective in your reviews, so what went wrong with this one? Your D.M. requires a bit of instruction on how to do a proper unbiased review of programs, like first of all finding out all the facts before putting pen to paper and possibly spending more than two minutes on a program.

As far as his comments on instructions — well! Software houses get it wrong too sometimes, and I know there's no excuse for instructions being missing, and under these circumstances how can a review be done at all, if you didn't know what the object of the game is? What about a phone call to Software Projects? After all they sent the game to you in good faith.

To help D.M. get the best out of the game, the instructions and description are as follows:

There are a total of five screens. In order to progress to the next screen, four balloon men must escape through the top row of each screen, via the escape hatch. The hatch will only open when the balloon men have collected jewels to the value of the screen level times two, eg two jewels screen one. No jewels have to be collected on screen two.

Hidden jewels increase your score if found.

The object of the game is to reach and conquer screen five. Beware of the spinning knives, fireballs, sparks and explosives.

I hope these instructions help.

Pat Norris, Worthing

Thanks for your help, Pat. However, our reviewers are instructed to treat the software as if they'd bought it over the counter, and if there are no instructions, then that must be commented on.

Our reviewers have nearly all been working for us from issue one, so they have a wealth of experience. You must remember that software reviews are a person's opinion on something, and as such are entirely subjective.

You're just as likely to disagree with a film or book review as you are a software review, and it's all very healthy. We don't claim to give the definitive view on anything — but what is a fair comment on the product as the reader finds it.

Top 20 teaser

Why does the Gallup software chart continue to list the VIC-20 and Atari, but not the Oric/Atmos?

Take for example the week ending January 15. There was no Atari software in the top 20, and Hunchback at number 20 was the only VIC-20 software to feature.

But Football Manager (number five) and Manic Miner (number eight) are both produced for the Oric/Atmos, and so incidentally is Hunchback, making three chart positions, which is more even than the Electron!

The Oric/Atmos might have faults, but as a games machine it's second to none, and we're talking about games software. Isn't it time that the Oric/Atmos was given it's rightful place?

Brian Peters, Leeds

We have to be selective, obviously, about which computers we include in the Gallup software chart, and the reality is that all the other computers have larger user bases than the Oric/Atmos. However, we do still feature listings and software reviews for this computer, so we do continue to support it in other ways.

Key facts

I'm relying to Simon Chell's letter, HCW 97. I couldn't agree more about the Spectrum Plus keyboard. It is supposed to be professional — well the Texas has a proper professional keyboard.

Simon Chell has already pointed out that there are stacks of American games being imported and if Sir Clive could see the amount of hardware for the TI-99/4A he would faint!

If any TI owners haven't seen Parco Electric's range of both software and hardware they don't know what they're missing.

Adam Checkley, Edmonton

Brotherly love

Firstly, let me say how pleasing it is to see a computing magazine as informative as yours at such a reasonable price. It makes a change from some of the magazines on the market which claim to help all micro users, but quite frankly leave me totally bewildered and a lot lighter in the pocket!

I've written to you — in fact the first time I've written to any magazine — to air a couple of points which have been bugging me for some time.

Why is it that in these days of enlightenment people still feel it's necessary to slag off every other computer in favour of their own? OK, pride in ownership is all very well, and I would be the first to admit that my own trusty VIC-20 has been outclassed with the likes of the C64, but surely we're all part of the same computing fraternity now and it's a case of not what you've got but how you use it.

For myself, I'm hoping — if and when ERNIE coughs up! — to acquire a C64, but even if I should have that good fortune, I'd still be hanging on to my old VIC.

The point of all this is that it's about time we all pulled together instead of forming our own little cliques. In this instance I would like to say a big congratulations to Christopher McRobb for his Helping Hand.

Now for a moan at the manufacturers. Let me say straight off that I'm no hardware expert, and that this is more of a layman's request than a technical demand. Why is it that when major manufacturers bring out a new model, they rarely show any thought for previous customers with their older models?

An immediate case which springs to mind is the Commodore range. Would it not be advantageous — and more than likely more profitable — for the manufacturers concerned to either design newer models with at least some form of compatibility with existing models or offer, in one form or another, an update kit or service possibly along the lines of an updated BASIC ROM chip or cartridge.

Not only would this have the effect of increasing the companies' income, but the software houses would also benefit with the sales of software previously incompatible with single manufacturer hardware. It seems to make sound sense when you consider that people who are first time buyers would go for the newer model anyway rather than buy an (almost) obsolete model for update, and those who already own the model would no doubt delight to see their meagre 3.5K increase to a majestic 64K.

Of course exactly how practical this idea is I can't honestly say, as my knowledge of micro internals can be written on the back of a postage stamp, but there again I'm not getting paid for marketing this sort of thing to the ever increasing mass of micro buyers in the UK.

Anyway, as I've probably taken up a fair amount of your usable RAM on letters, let me finally say to Alex Sonny and A P Prochomos from HCW, thanks for supporting the VIC, but take note of my first point!

Nige Kerr, Argyll

Good point

I must object to Alex Sonny's letter in HCW 97. All computers have their advantages and disadvantages. It's not fair to say one is better than the other. The VIC-20 has good graphics and keyboard, while the BBC has good sound and BASIC, and the Spectrum has excellent software support.

Marcus Knight, W Sussex

Going gone

A big thanks for being the best value for money mag on the market. It's interesting from cover to cover and is of special value to VIC-20 owners — of whom I am one — because you support them so well with your listings. Please keep on putting them in. I buy it every week but have only one gripe.

The listings for the VIC-20 sometimes are so faint that I can't read them, or are you fading them out to match the production of the VIC-20?

J A Sheppard, Balham

TI terror?

In all respects I consider myself a patient man, but after reading Mike Curtis's letter (HCW 85), it was the last straw! The letter carried the title Worst Game Ever, and was about a game called Pole Position for the Spectrum, for which he payed £15, for a game written in BASIC.

Mike wrote: "I have seen better games for the TI-99/4A." Well, here's a reply to that big-headed remark. The TI-99/4A is a 16K machine and the Spectrum referred to in this letter is a 48K machine. The Texas is capable of some very sophisticated graphics, but this cannot be accomplished with 16K, so the Spectrum's graphics should be three times better than on the TI, but they're not.

By the way, has anyone else noticed that most of these comments come from Spectrum owners? I think this is because they feel the TI is a threat to their machine.

K J Macaulay, Isle of Lewis

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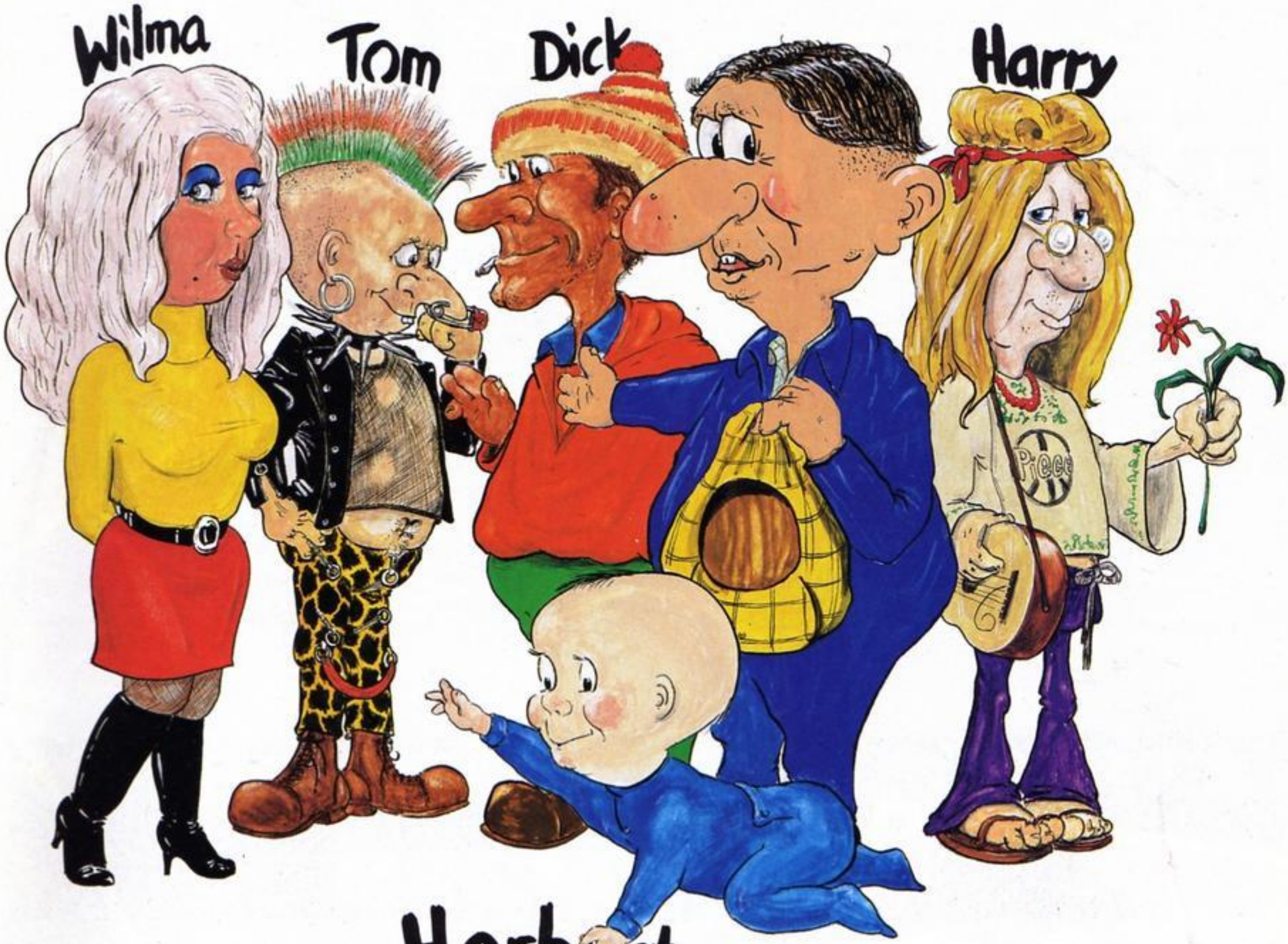

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